

owner's manual



X-Eight HS and RT mixing consoles



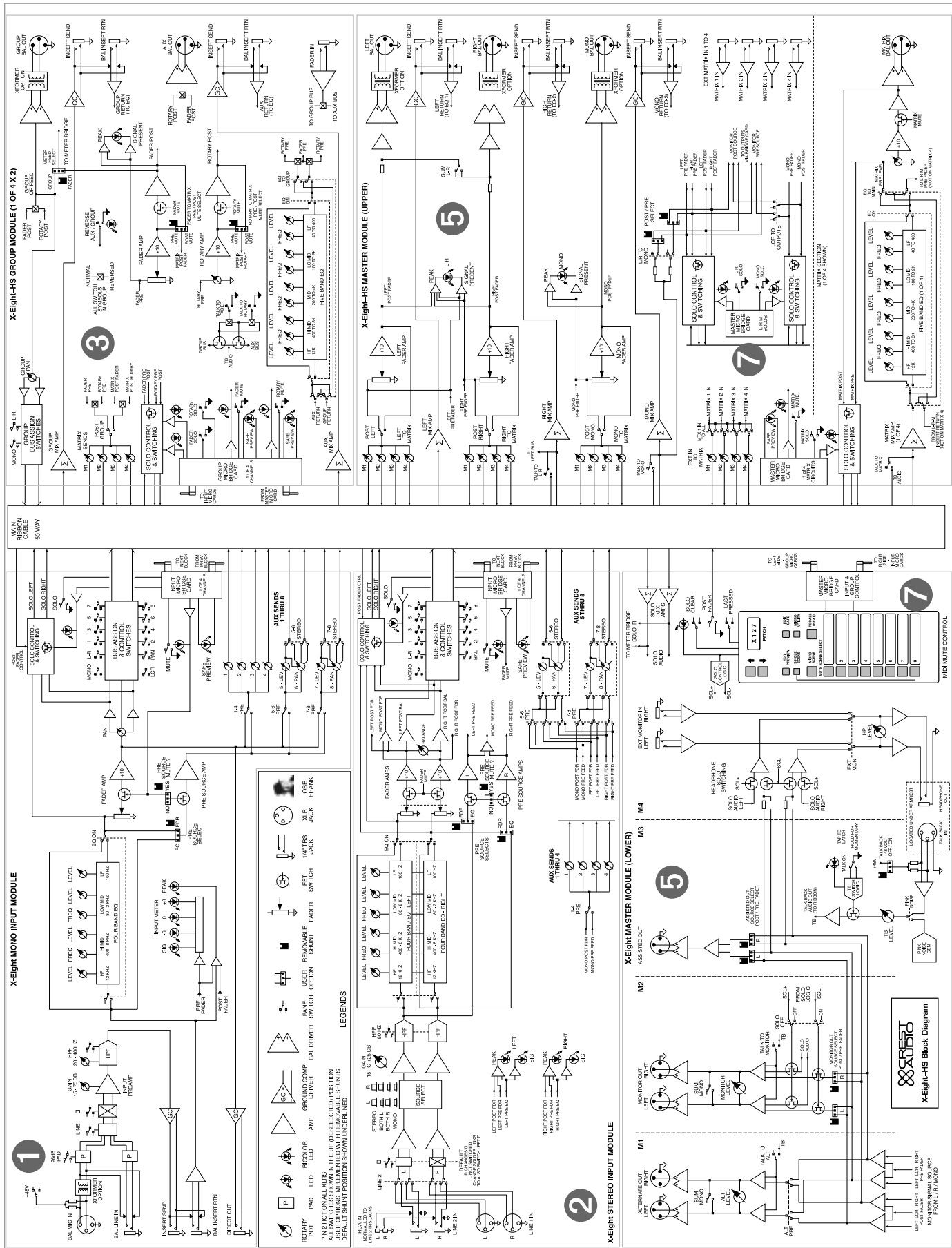
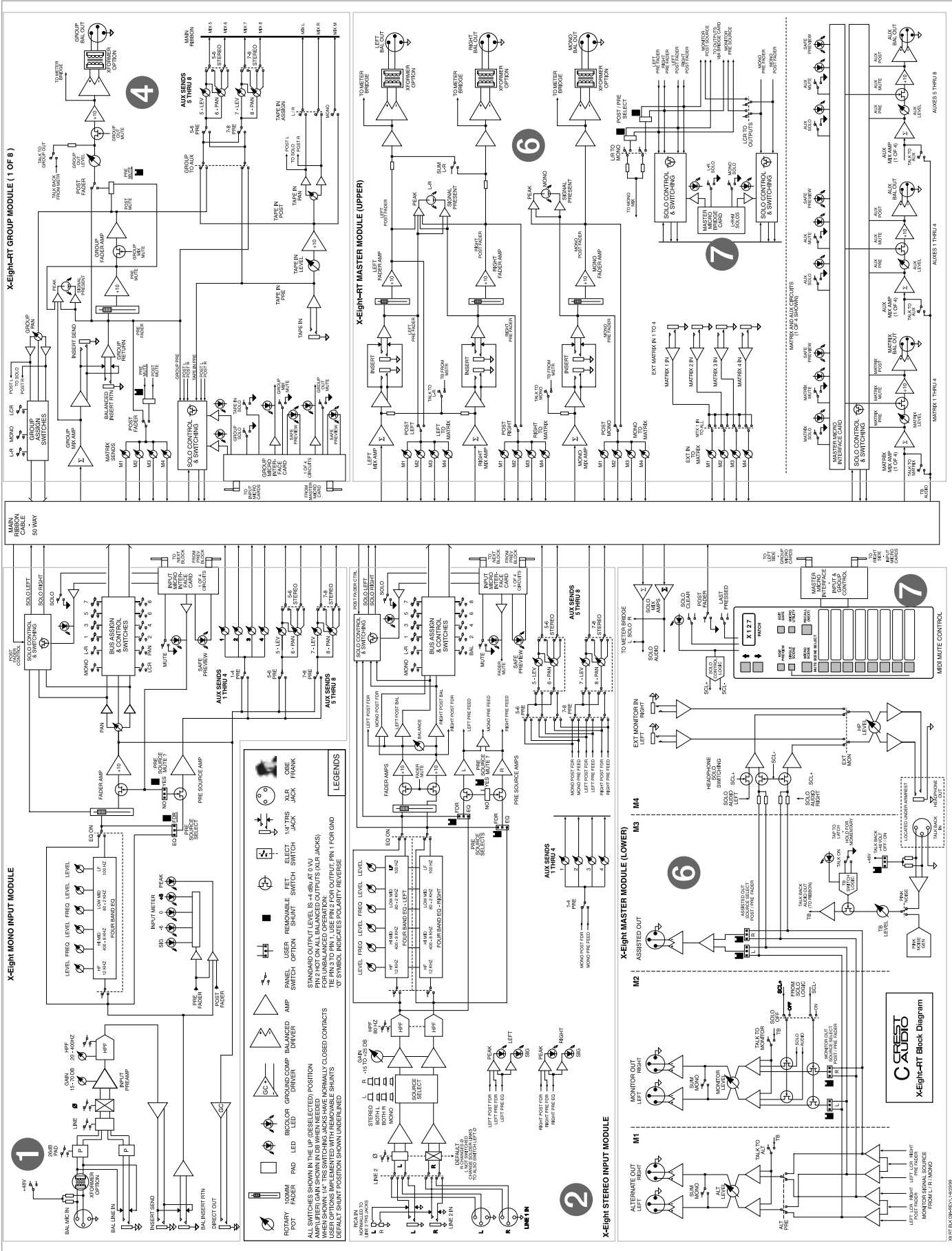


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mono inputs	p. 7	1
stereo inputs	p. 25	2
groups HS	p. 41	3
groups RT	p. 59	4
master HS	p. 73	5
master RT	p. 101	6
micro muting system	p. 125	7
power supply	p. 141	8



conventions

terms

indicators or controls employed on the X-Eight console will appear as: TERMS

tasks

are broken down into steps ❶

❷

❸

warnings

Procedures **not** to attempt.



Issues or hazards to keep in mind when operating the equipment.

indicators

What to look for on-screen.



Alerts, indicators, or prompts that may appear.

tips

Preferred methods.



Helpful hints.


Feature insights.

see

see—references other sections of the manual containing supplementary information on the current topic or a related issue

features


phantom power—+48V

 48 volts DC is applied to pins 2 and 3 on the mic-input XLR connector. This option is used with condenser microphones and active direct boxes that require an external DC voltage (phantom power) in order to operate.

The 48V switch should not be engaged when using standard (dynamic) microphones, or other sources that do not use phantom power.




pad


 The mic-input signal is attenuated by 20dB to prevent some signals (e.g. kick drum or lead vocal) from overloading the preamp stage. The pad is used to bring a hot mic-input signal down to a controllable level. The 20dB pad is not functional when the LINE switch is depressed.

If the channel peak LED is illuminated, first try lowering the input gain control. Only when this method is unsuccessful should the pad switch be engaged.



line

 The input preamp circuit is set up to accept a mic-level signal. This signal is brought in via the XLR mic-input connector located on the rear panel. The 1/4" TRS input jack is disabled.

 The input preamp circuit is set up to accept a line-level signal from either the XLR mic-input connector or the 1/4" TRS input jack, both located on the rear panel.

When a plug is inserted into the 1/4" TRS input jack, the XLR mic-input connector is disabled.


If the 48V phantom power switch is engaged, depressing this switch disconnects phantom power from the mic input XLR.



polarity reverse—Ø

This feature is used for correcting or minimizing polarity and phase related errors. For example, occasionally a balanced input connection is reverse-wired before it gets to the mixing console. This can happen in microphones, or in snake line interfaces. By using the polarity reverse feature, this type of error can be corrected.

 polarity inverted

 polarity not inverted

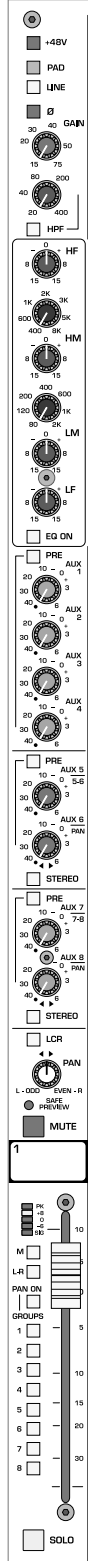
When similar signals from different channels are combined, phase cancellations can occur.

Reversing the polarity of an input signal often corrects such phasing errors.

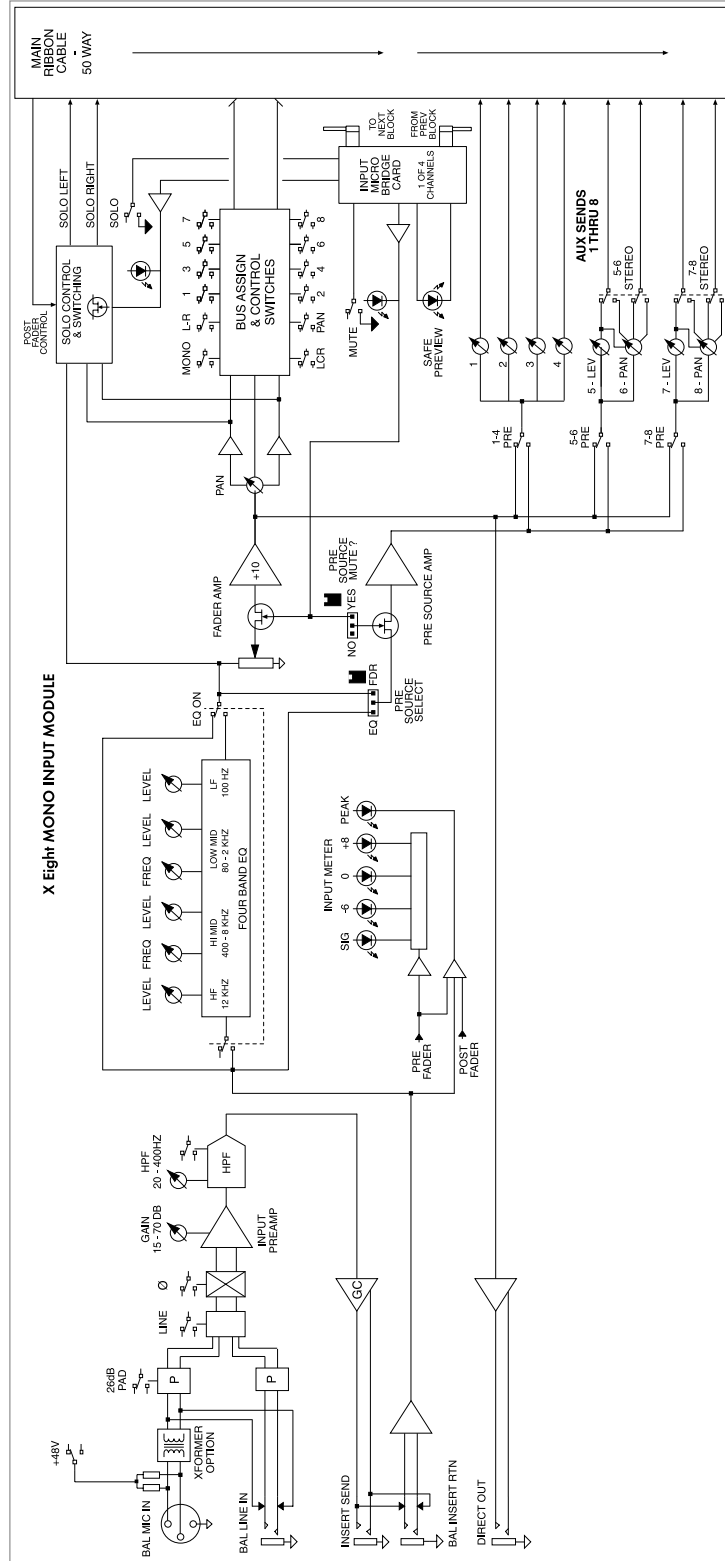


1 mono input module

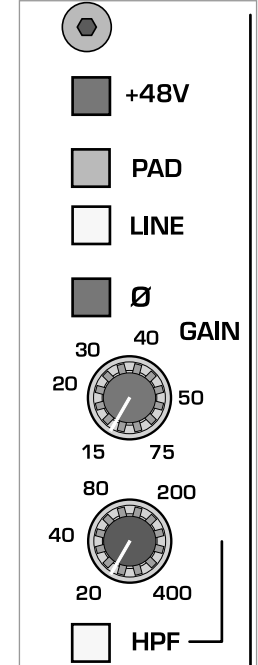
module



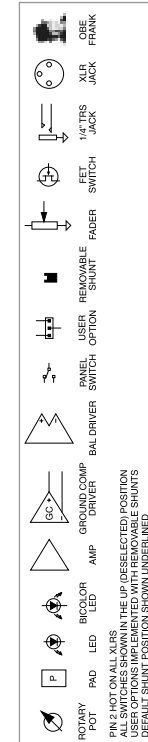
block diagram



panel




legend





features


gain

The Input gain control range is closely related to the status of the PAD switch and the LINE switch. In order to establish proper gain structure in the console, input gain settings must be set correctly.

 LINE—switch-up PAD—switch-up
15 to 75dB of gain can be added the mic-input signal.
The impedance at the input XLR is 4k Ω .

 LINE—switch-up PAD—switch-down
-5 to 55dB of gain can be added to the mic-input signal.
The impedance at the input XLR is 4k Ω .

 LINE—switch-down PAD—switch-up or -down
-10 to 45dB of gain can be added the line-input signal.
The impedance at the input XLR and input 1/4" TRS is 20k Ω .

If the channel peak LED is illuminated, first try lowering the input gain control. Only when this method is unsuccessful should the pad switch be engaged. 


high-pass filter—HPF

Proper use of the high-pass filter reduces or eliminates unwanted low frequencies without substantially affecting the program material. Quite often such unwanted low frequencies are included with in-coming mic- or line-input signals. For example, stage rumble or wind can be picked up through vocal mics. The slope of the high-pass filter is 12dB per octave.

HPF

High-pass filter is **on**.

HPF—variable control


 When the high-pass filter is on, this control selects a frequency between 20Hz and 400Hz as the point where attenuation begins.

EQ features

Many audio signals coming into the console require some degree of corrective eq in order to be part of a good sounding mix.


The input eq consists of four-bands: high, high-mid, low-mid and low. The high and low bands have fixed frequencies while the high-mid and low-mid bands are sweepable, with their higher and lower frequencies overlapping adjacent bands.

high frequency—HF


 15dB boost and cut at 12kHz—Shelving Response.


high-mid frequency—HM

 15dB boost and cut.


 Selectable frequency range of 400Hz to 8 kHz.
The response is bell-shaped with a fixed Q of 1.5

low-mid frequency—LM


 15dB boost and cut.

 Selectable frequency range of 80Hz to 2kHz.
The response is bell-shaped with a fixed Q of 1.5

low frequency—LF

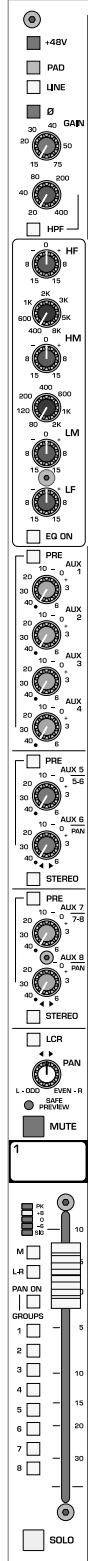
 15dB boost and cut at 80Hz.
The boost response is bell-shaped and the cut response is shelving.

eq on

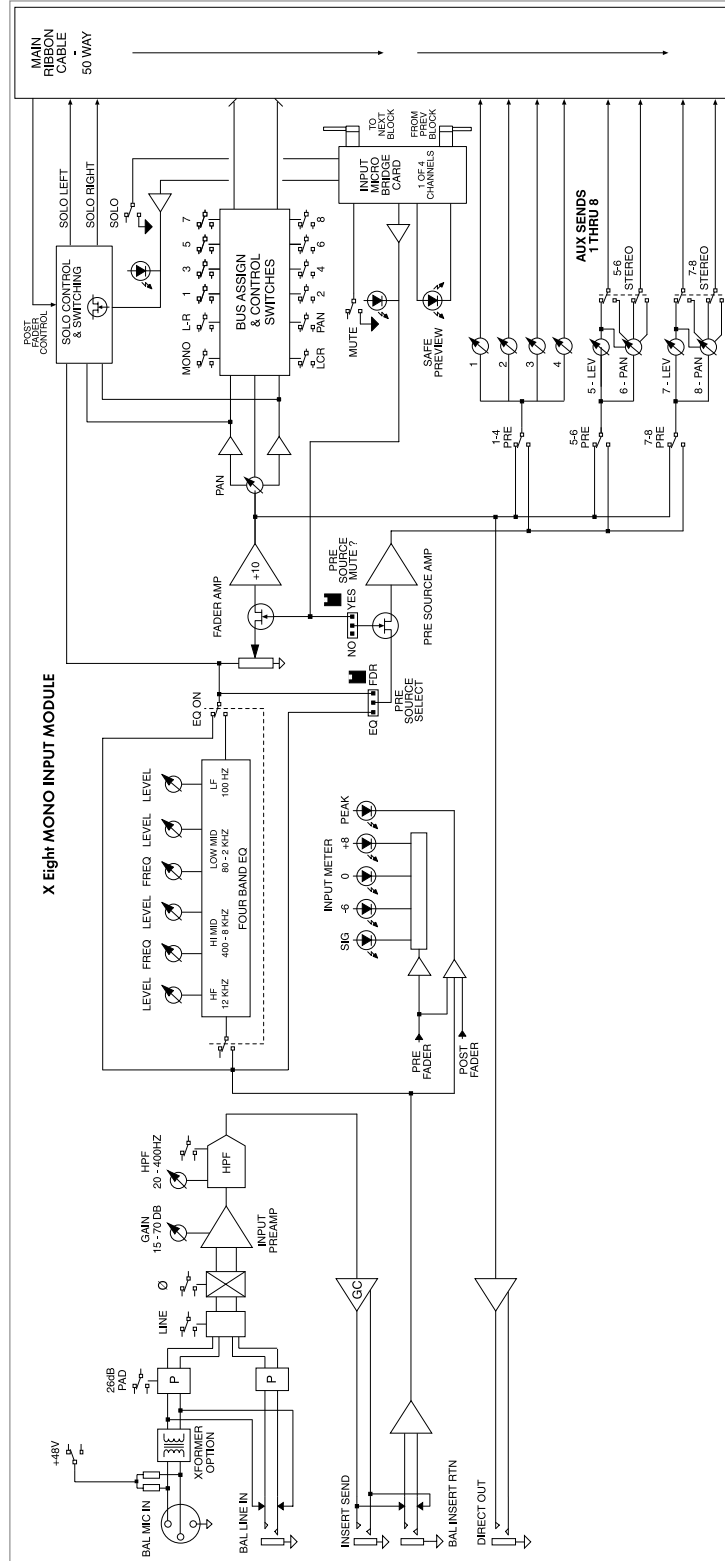
 Equalizer is **on**. This switch can be used to make A/B comparisons between "flat" and eq'd signals.

1 mono input module

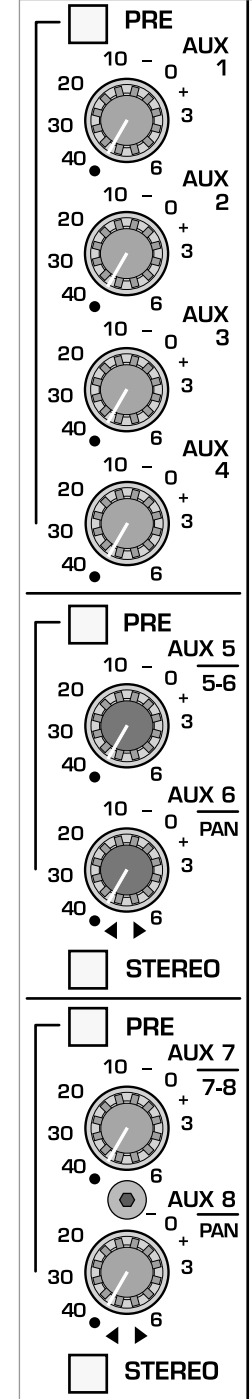
module



block diagram




panel



aux send features

Eight auxiliary AUX SENDS are available for creating individual output mixes. These mixes can be used for driving effects processors, providing monitor mixes, creating broadcast or alternate sound reinforcement mixes, or other special requirements.


aux sends 1–8


 These knobs adjust the amount of signal sent to the AUX buses. Unity gain occurs at the zero setting. AUX 6 and 8 controls pan function when selected for stereo operation.

aux 1–4, 5/6 and 7/8 pre-fader—PRE

The default signal source for the AUX SENDS is post-fader. These switches are used for selecting the pre-fader signal for their respective auxes. The pre-fader signal is derived post-mute and post-eq.


see—**internal jumper options**

 AUX SENDS are post-eq, post-mute, and post-fader.

 AUX SENDS are post-eq, post-mute, and pre-fader.

aux stereo 5/6 and 7/8

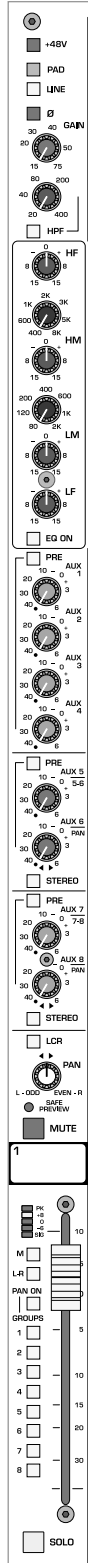
The default configuration for AUX 5, 6, 7 and 8 is mono, as with AUX 1–4. In situations where stereo-aux signals are required (such as driving stereo in-ear monitors or effects processors), these switches reconfigure the AUX SENDS to operate in stereo by changing the functions of the potentiometers.

 AUXES are configured as individual mono sends.

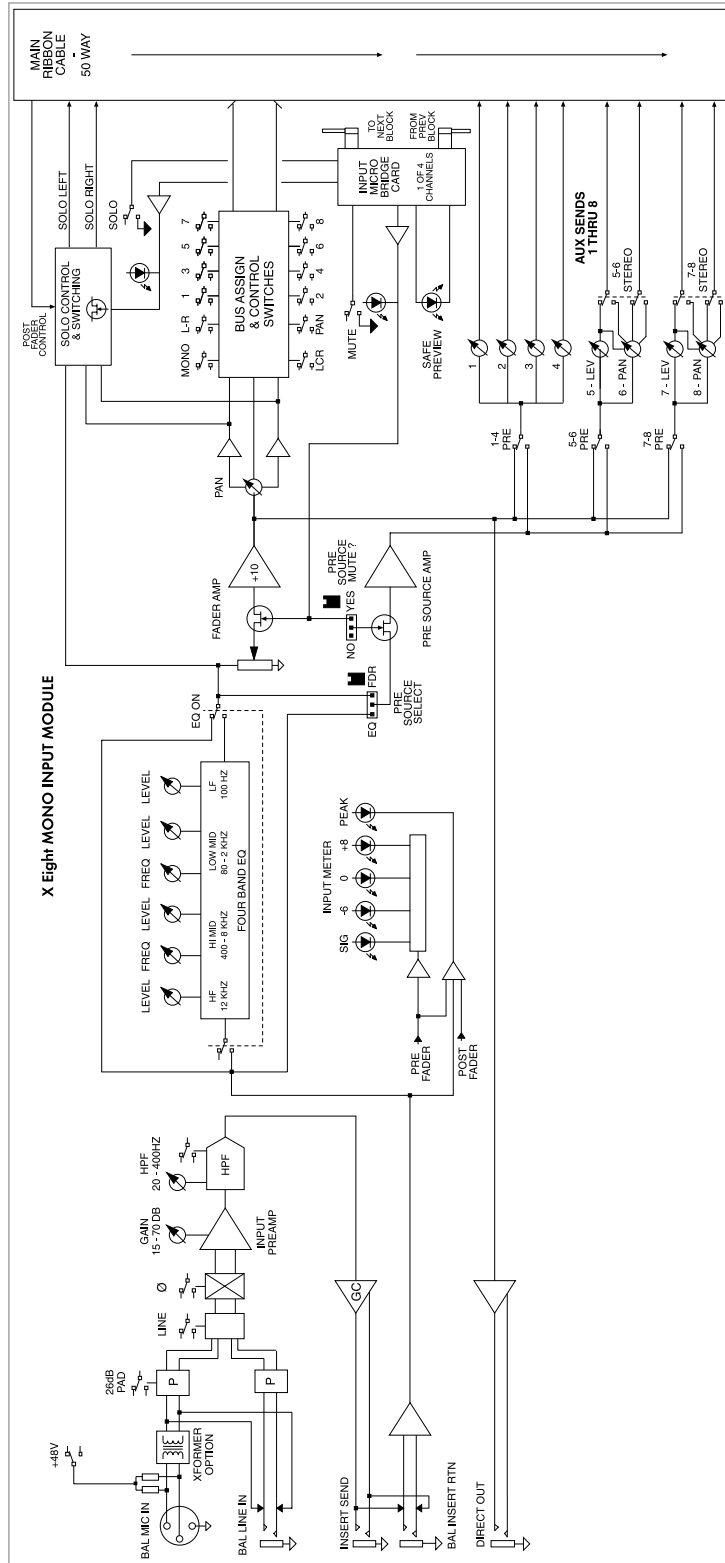
 AUXES are configured as level and pan for stereo operation.

1 mono input module

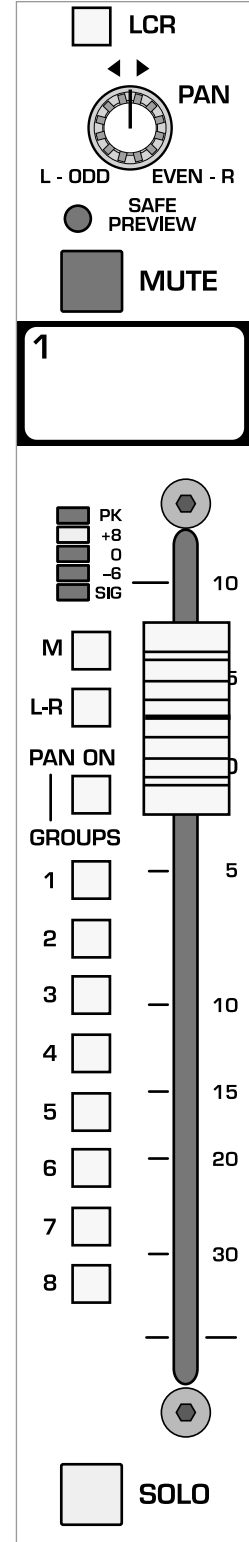
module



block diagram



panel




bus assignment features

The Input bus assignment section offers considerable flexibility for creating what eventually becomes the main output mix. Such features as LCR, GROUP PAN ON and eight-individual group assignments allow several approaches to building the desired mix. All assignments are derived post-fader, post-eq, and post-mute.

left-center-right—LCR

This feature is used to precisely position a signal in a sound system with a center speaker cluster in addition to left and right clusters. The PAN control becomes an integral part of how the input-signal is sent to the LEFT, CENTER, and RIGHT outputs.

 The post-fader signal is assigned to the LEFT, RIGHT, and MONO/CENTER buses. Relative amounts of the signal fed to each bus is determined by the position of the PAN control.

pan control

The pan control positions the signal within the stereo left/right field, (or between left/center or center/right in LCR mode). The signal must be assigned to either LCR or the L-R bus for the pan control to have any affect.

see—**left-center-right**

safe preview—LED

 Green steady


This means that the mute function is in safe-mode. If the channel is part of a mute scene, it will **not** be activated when the scene is recalled. The local mute function operates normally regardless of whether or not the channel is in safe-mode.

 Green flashing

The micro mute system is in edit-safe mode, and the channel is included in the safe-scene. Pressing the local mute button will include or exclude the mute from the safe-scene.

Pressing the edit-safe button in the micro channel section will remove the console from edit-safe setup mode and save any changes that have been made to the safe-scene. At this point, the green-LED will stop flashing.

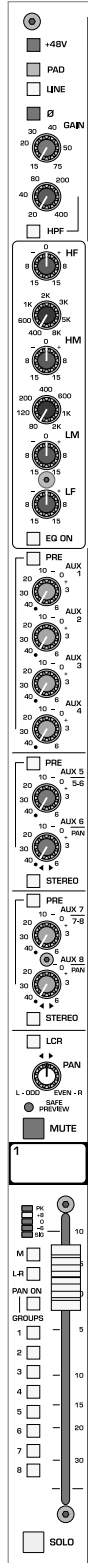
The green-LED will light steadily if the channel is part of the safe-scene, or extinguish if it is not part of the safe-scene.

When in safe-mode, a channel will not accept commands for any external source. 
Commands sent from the master onboard processor and any external MIDI device will also be ignored.

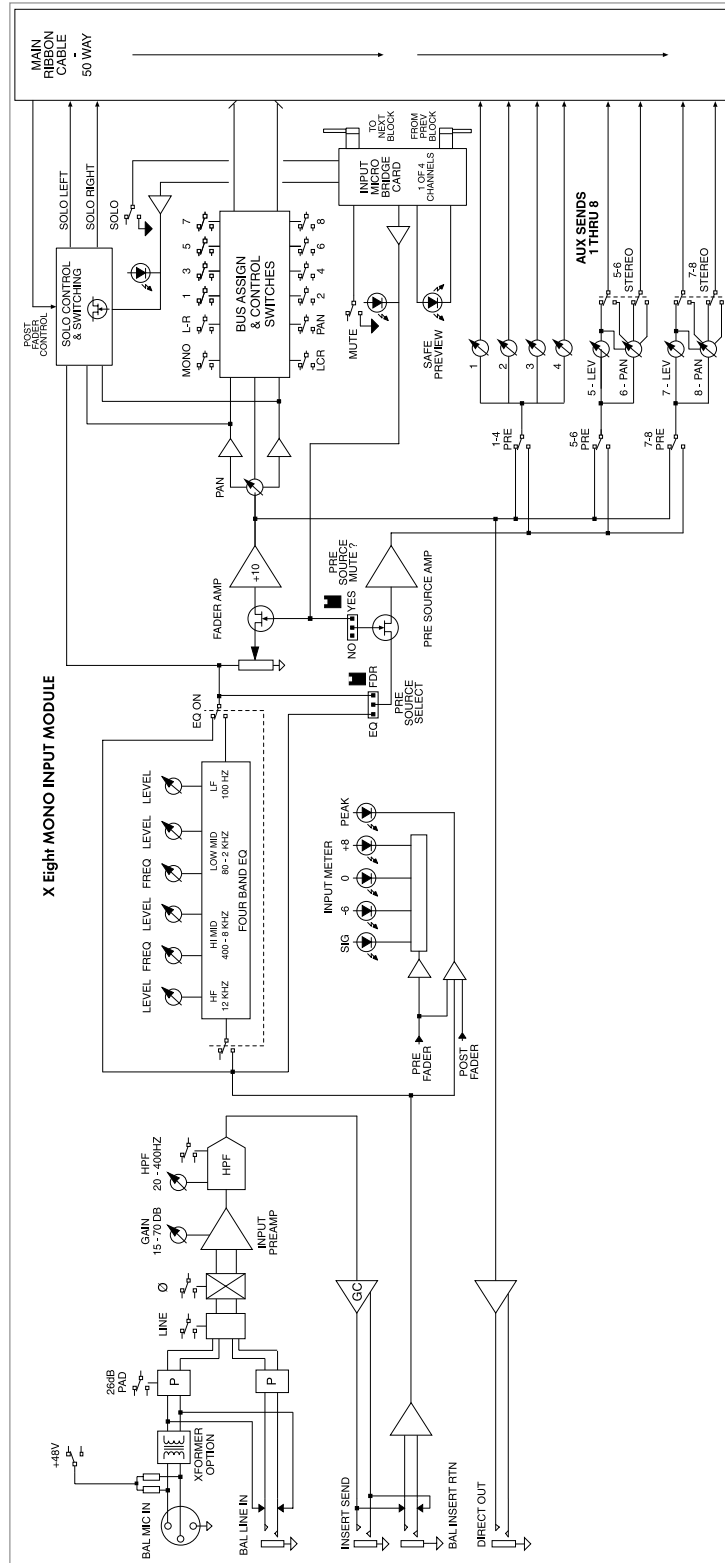
green-LED status 
flashing green
edit-safe mode
channel included in safe-scene
steady green
part of the safe-scene
no light
not part of the safe-scene

1 mono input module

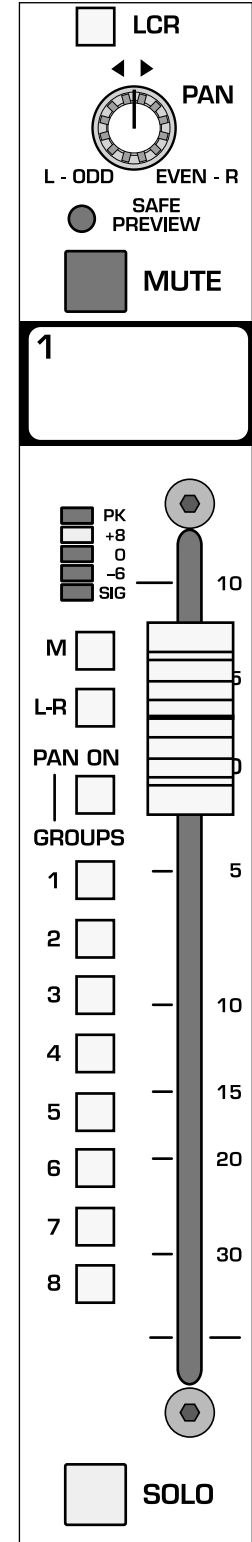
module



block diagram




panel



bus assignment features

safe preview—LED

 Red steady

This indicates that the mute has been activated by the micro mute section and is part of the current mute scene.


 Red flashing

This indicates that the micro mute system is in edit-preview mode and the channel is part of the mute scene that is currently being created or edited. Pressing the local mute button will include or exclude the channel from the selected mute scene.

Pressing the edit-preview button (LED-off) in the micro mute section will remove the console from edit-preview mode and save any changes that have been made to the selected mute scene. At this point, the red-LED will stop blinking.

The red-LED will light steadily if the channel is part of the active mute scene, or extinguish if it is not part of the active mute scene.

see—**microprocessor muting**

red-LED status 

flashing red
edit-preview mode
channel in mute scene

steady red
part of active mute scene

no light
not part of mute scene

mute

 The Mute switch has three functions:

- 1 It acts primarily as a local mute switch by activating and deactivating the mute. When any mute is activated locally, it will remain muted until it is deactivated locally regardless of whether or not the mute is part of the safe-set or an active mute scene (or a mute scene that has been made inactive).
- 2 It is used in creating and editing mute scenes when the microprocessor mute section is in edit-preview mode.
- 3 It is used for including and excluding the mute in the safe-set when the microprocessor mute section is in edit-safe mode.

This switch is illuminated whenever the channel is muted.

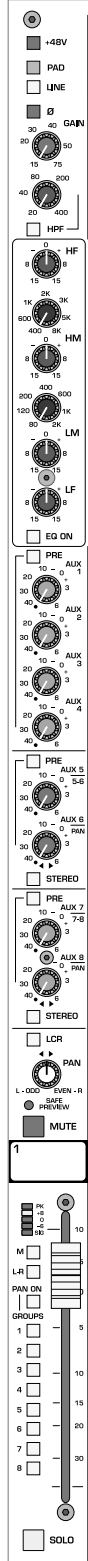
see—**microprocessor muting**

write-in label

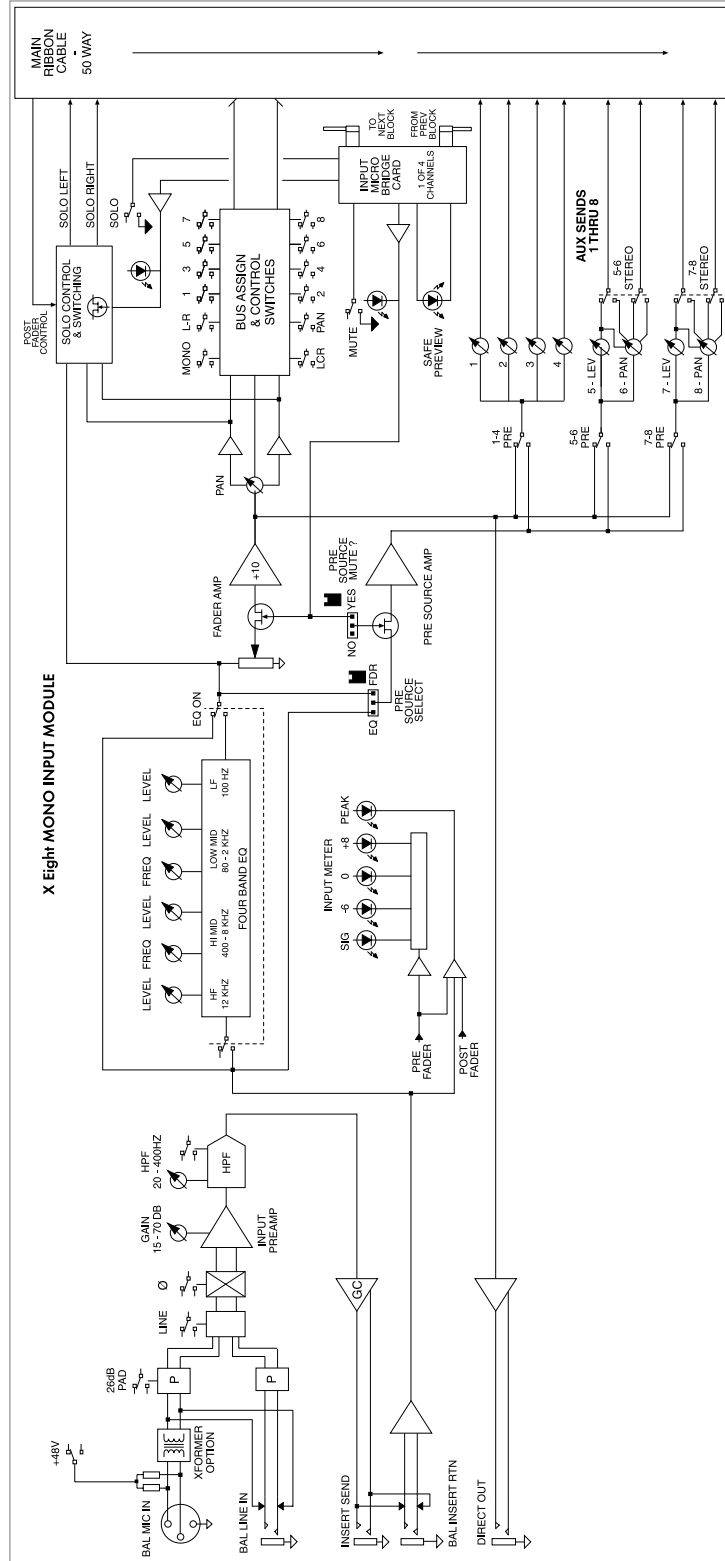
This label may be written on with a grease-marker, and later wiped clean with a cloth moistened with isopropyl/rubbing alcohol. Masking tape may also be placed on this surface, if desired.

1 mono input module

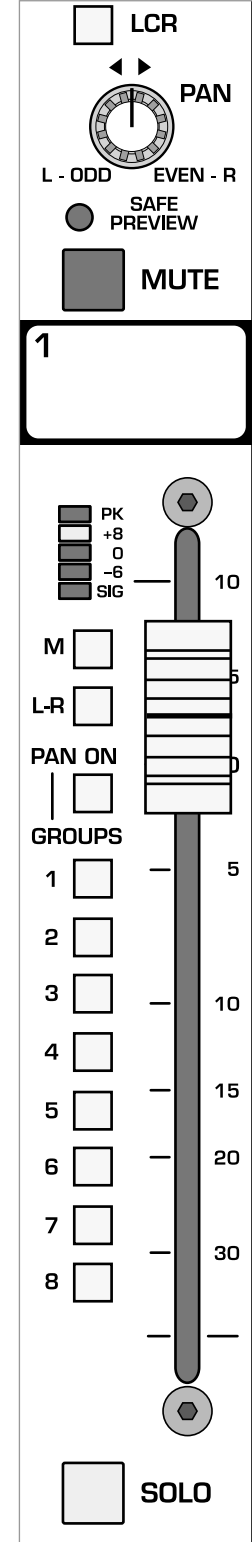
module



block diagram








panel




level meter features


level meter

     Each input includes a five-segment LED meter for visually monitoring signal levels. This is essential for setting up and maintaining proper gain structure.


peak indicator—PK

 The input signal is monitored at several points throughout the channel. These points are the mic preamp, the EQ stage and the fader stage. Overloads at any of these stages will cause the red peak-LED to light. Then the channel gain should be reduced.

signal level LED's

 These three LED's light up at +8—yellow, 0—green, and -6 dB—green. This level range -6 to +8 is the optimum operating range. Compressed or relatively constant signals should remain close to 0.

signal present indicator—SIG

 This green-LED varies in brightness in response to signal levels between -40 dB and -6 dB.

Occasional flashing of the peak LED is acceptable, but frequent flashes indicate that channel levels must be lowered.

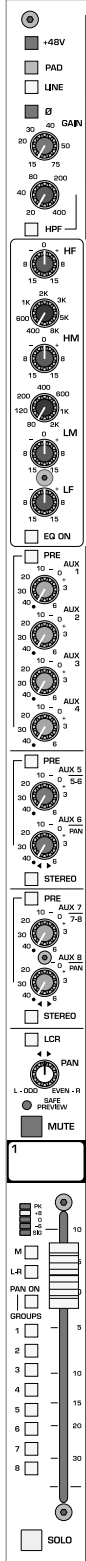


If the channel peak LED is illuminated, first try lowering the input gain control. Only when this method is unsuccessful should the pad switch be engaged.

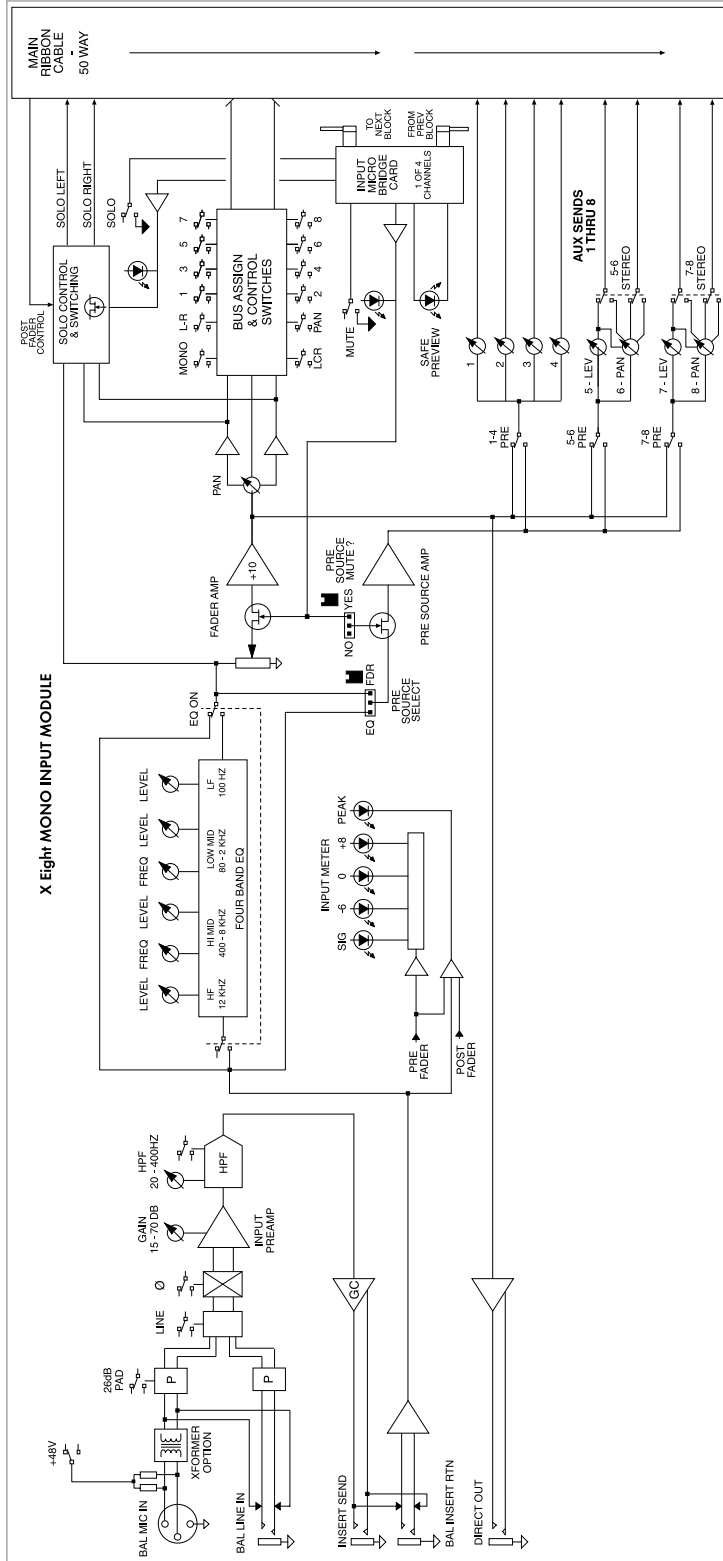


1 mono input module

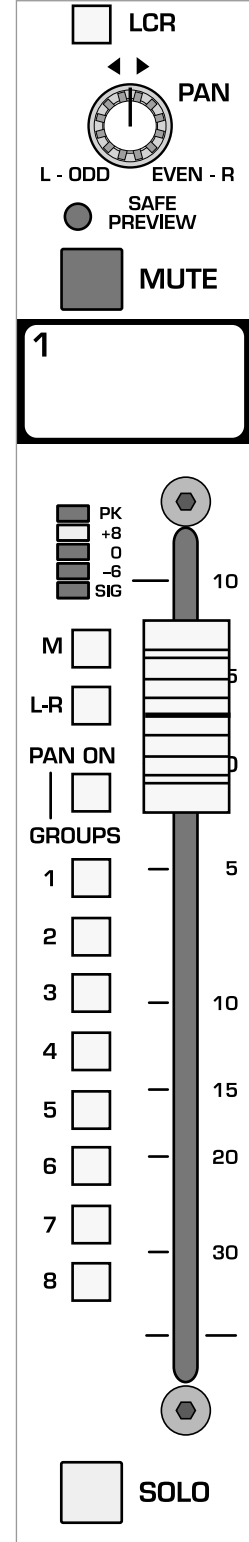
module



block diagram




panel




bus assignment features


mono assignment—M


 The signal is assigned to the discrete mono bus. When the LCR button is depressed, this switch is bypassed.

left / right assignment—L-R

 The Input signal is assigned to the main Left and Right output buses, deriving its signal after the channels pan system. When the LCR button is depressed, this switch is bypassed.


pan on—groups—PAN ON

 The eight GROUP assignment switches assign the input signal in mono, independent of the pan pot.

 The eight GROUP assignment switches assign signals as four stereo-pairs. The PAN control governs the stereo placement of the four stereo-pairs, which are now configured as odd-left / even-right.

For example: GROUP 1—left, GROUP 2—right, GROUP 3—left, GROUP 4—right, ...continuing through GROUP 8.

group 1–8 assignment


 The input channel's post-fader signal is assigned to the corresponding GROUP bus(es).

see—**pan on—groups**

input fader

The input fader is the primary level control for signals being sent to any of the console's mix buses. The only signals not affected are AUX sends selected to be pre-fader. The fader offers greater than 80dB of attenuation and up to 10dB of boost. Normal operation is between -10 and 0.

solo

 Pressing this switch will include (illuminated) or exclude (not-illuminated) the input channel from the console's SOLO system.

see—**master module**, solo control system

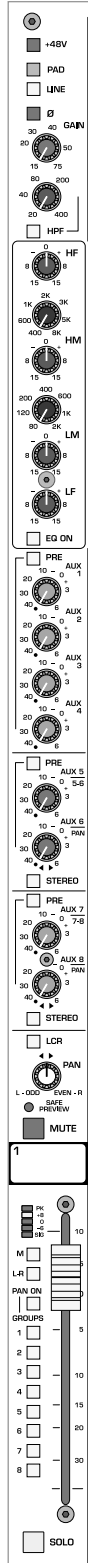
Always turn off and disconnect the amplifier from mains voltage before making audio connections.



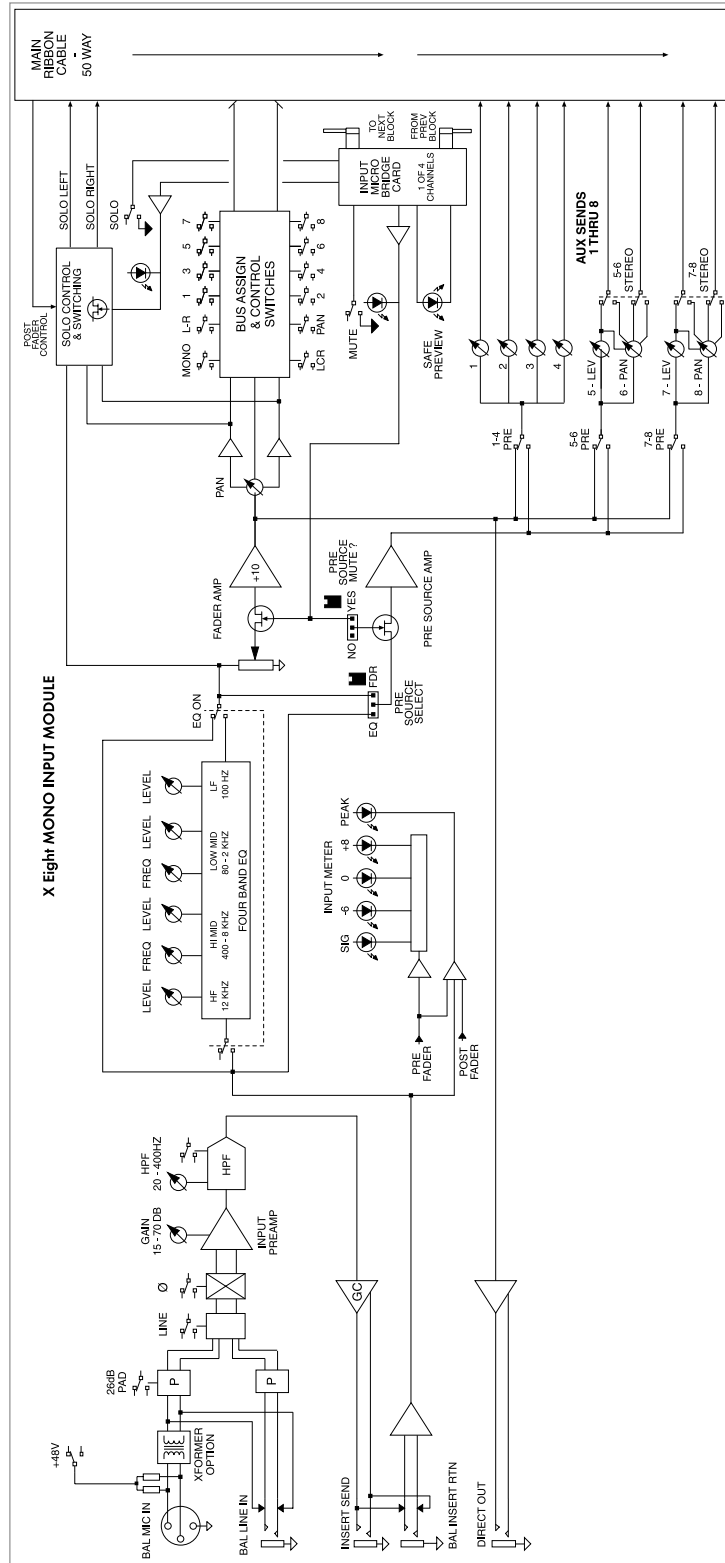
As an extra precaution, have the attenuators turned down during power-up.

1 mono input module

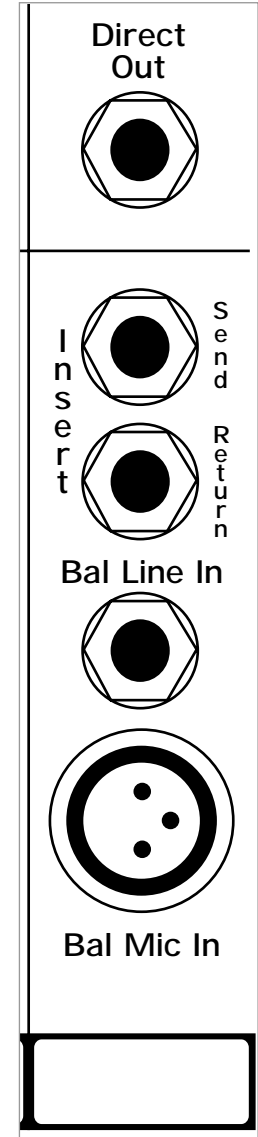
module



block diagram



panel



rear panel features


direct out 1/4" TRS jack


 The input channel's signal is available at this output jack. The default signal routing is derived post-fader, post-eq and post-mute. This output jack is ground-compensated.

insert points


Separate 1/4" TRS jacks provide the facilities for inserting an external signal processor into the signal path of the input channel.


insert send

 This jack serves as an output for connection to the input of a signal processor. The signal is derived after the mic preamp and HPF but before the eq section. Plugging a 1/4" TRS plug into this jack does not break the signal flow of the channel. This output jack is ground-compensated.


The insert send can also be used as an additional channel output when a pre-EQ signal is needed. 

insert return


 The output of a signal processor is fed to this jack. It can accept a balanced or unbalanced signal and is located pre-eq. Plugging a 1/4" TRS plug into this jack does break the signal flow of the channel.

In situations where the preamp circuitry is not needed, the Insert Return can be used as the channel's input. 
For example, when using an expensive tube mic preamp.

balanced line-in jack—Bal Line In

 Line-level signals, balanced or unbalanced, may be brought into the input channel through this jack. The LINE switch must be depressed for this jack to be active.

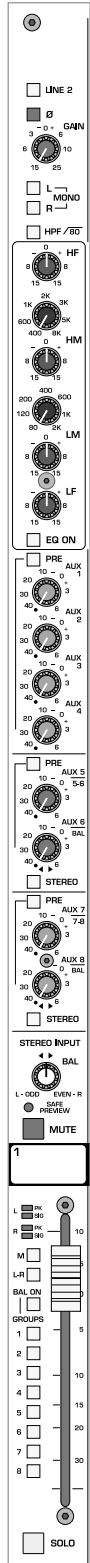
balanced mic-in xlr connector—Bal Mic In

 This balanced female XLR accepts a low-impedance microphone signal, or a line-level signal, depending on position of the LINE switch on the front panel.

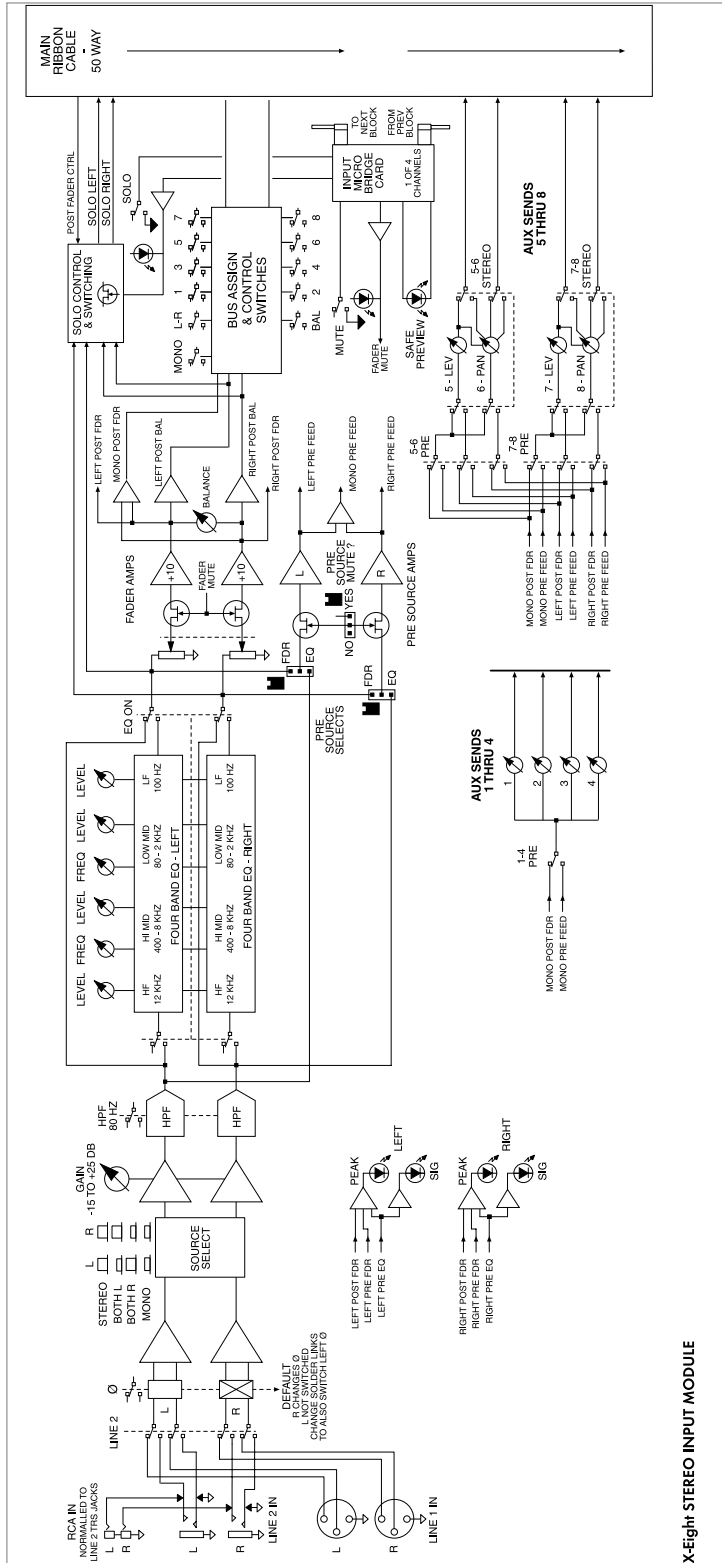
see—**mono input module**, phantom power, line

2 stereo input module

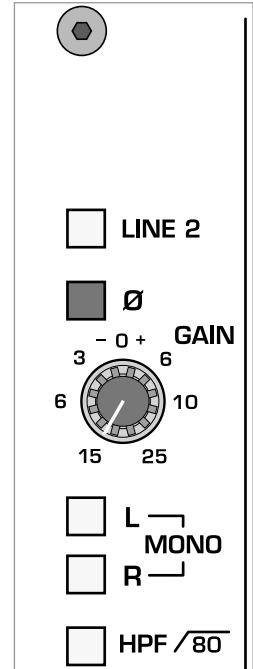
module



block diagram




panel



features

The stereo input module can be configured to operate as either stereo or mono. When configured to operate in mono, many features are identical to those of the mono input module.

To avoid redundancy, mono features will refer back to corresponding sections on the Mono module. 

Descriptions given here are specifically for the default Stereo configuration.

line select—Line 2

This switch determines selection of input signals from the three sets of rear panel connectors.

The channel is in LINE 1 MODE. The signals are brought in via the left and right line-input XLRs located on the rear panel.

The channel is in LINE 2 MODE. The signals are brought in via the RCA line-input connectors which are normalled through the 1/4" TRS line-input jacks. Insertion of a plug into the 1/4" jack disconnects the RCA jacks.

left and right mono-switches

These switches provide several options for configuring the stereo line-input module as a mono line-input module.

left right
Signals brought into the left and right inputs are treated as stereo throughout the module.

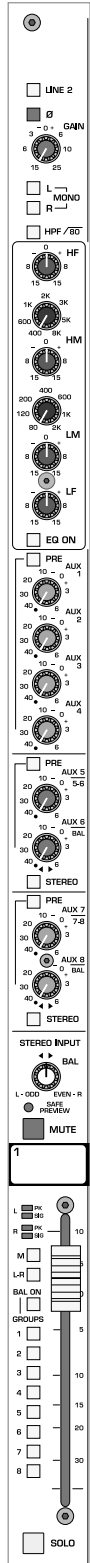
left right
Signals brought into the left and right inputs are summed together immediately before the GAIN control. The summed signal is treated as mono throughout the rest of the module.

left right
The signal fed to the left input is treated as a mono signal throughout the module. No signal from the right input is used.

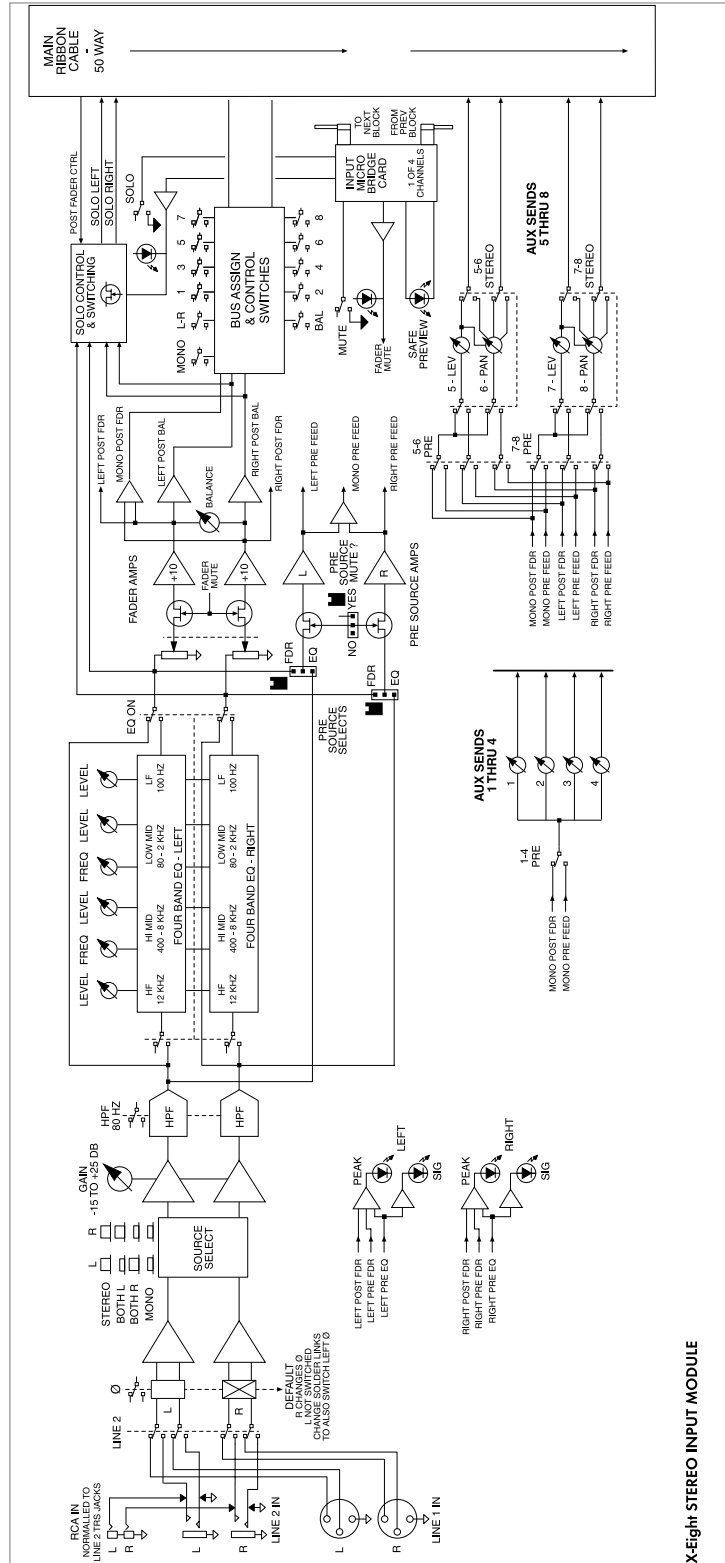
left right
The signal fed to the right input is treated as a mono signal throughout the module. No signal from the left input is used.

2 stereo input module

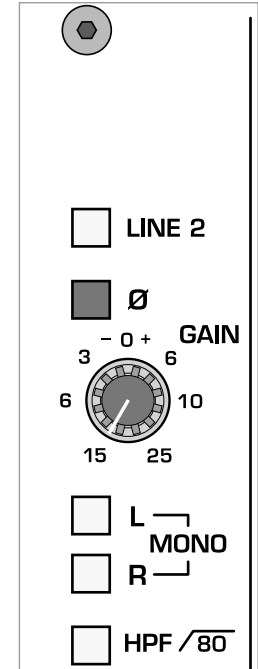
module



block diagram




panel



features

input gain—GAIN

 This control adjust the gain of the input preamp(s). Both left and right input signals are affected by this control.

polarity reverse—Ø

This switch inverts the polarity of the right input signal in relation to the left input signal.

see—**mono input module**

Polarity of the right input signal is inverted.

Polarity of the right input signal is not inverted.

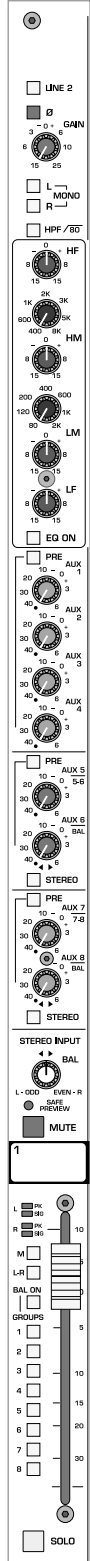
high-pass filter—HPF

The high-pass filter is activated for signals coming into both the left and right inputs. The shelving frequency is fixed at 80Hz with a slope of 12dB per octave.

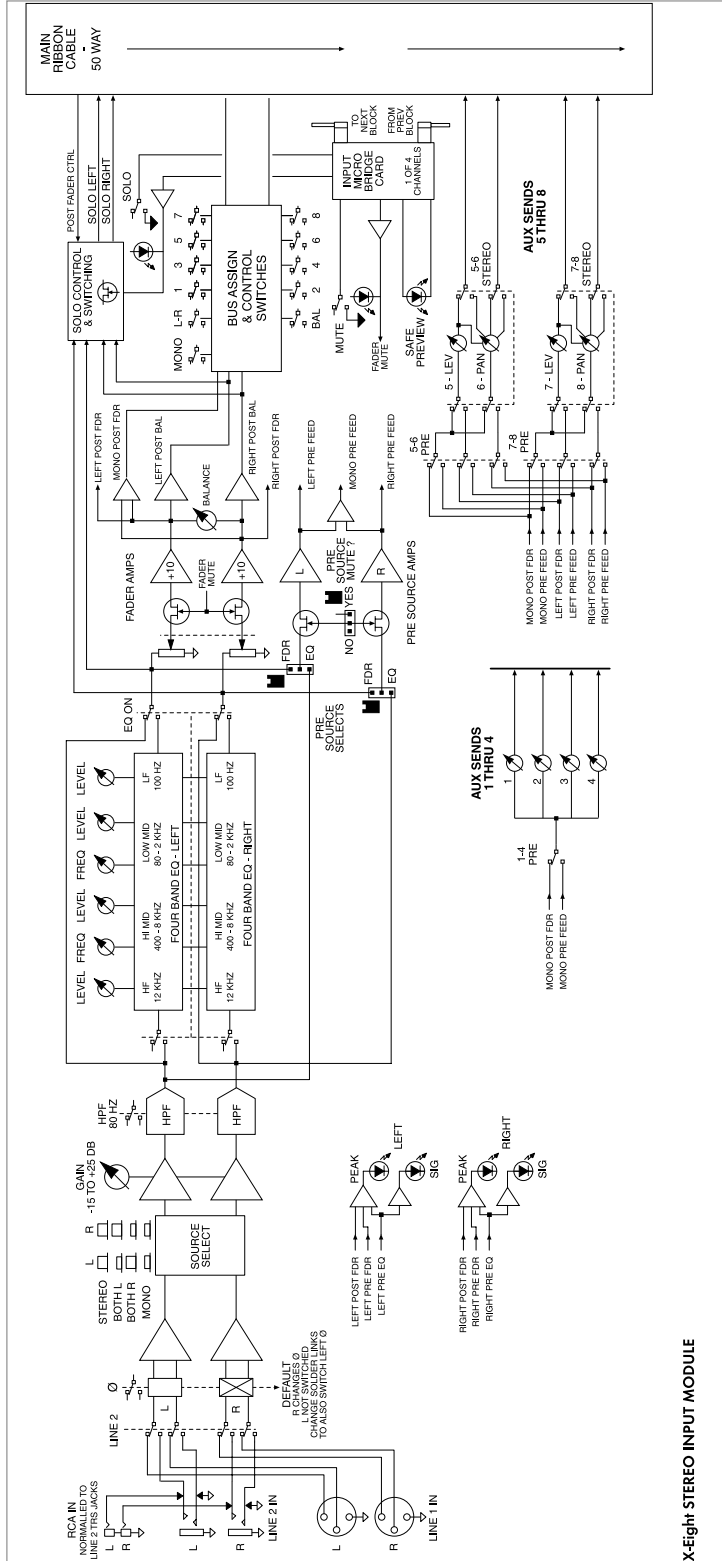
Proper use of the high-pass filter reduces or eliminates unwanted low frequencies, without substantially affecting the program material. Quite often such unwanted low frequencies are included with in-coming mic- or line-input signals. For example, stage-rumble or wind can be picked up through vocal mics.

2 stereo input module

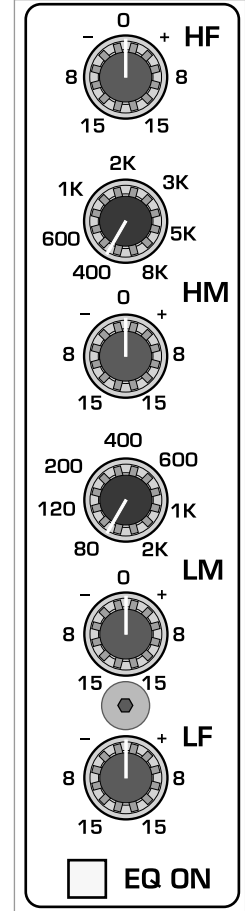
module



block diagram



panel




four-band stereo EQ features

Although left and right signals are processed separately, the parameters are set in tandem by common front-panel controls.


see—**mono input module**

high frequency—HF

 15dB boost and cut at 12kHz—shelving response.


high-mid frequency—HM

 15dB boost and cut.


 Selectable frequency range of 400Hz to 8 kHz.
The response is bell-shaped with a fixed Q of 1.5

low-mid frequency—LM


 15dB boost and cut.

 Selectable frequency range of 80Hz to 2kHz.
The response is bell-shaped with a fixed Q of 1.5

low frequency—LF

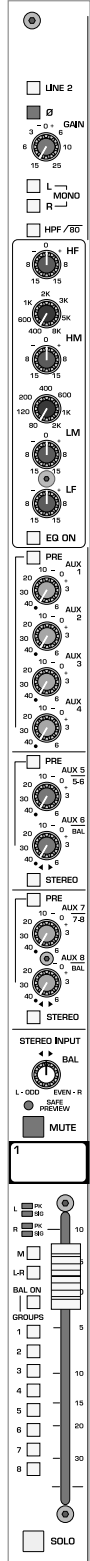
 15dB boost and cut at 80Hz.
The boost response is bell-shaped and the cut response is shelving.

equalizer—EQ ON

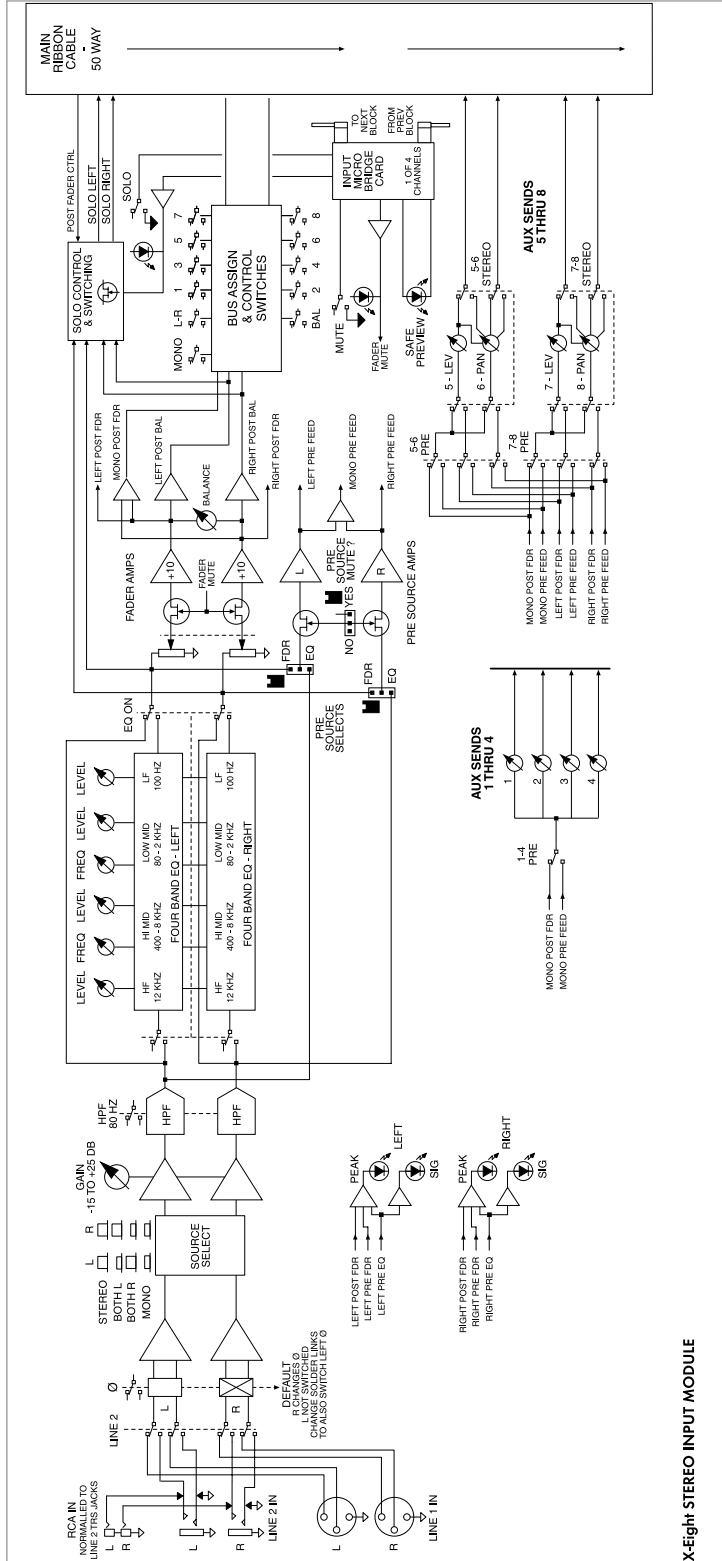
 Equalizer is **on**. This switch can be used to make A/B comparisons between "flat" and eq'd signals.

2 stereo input module

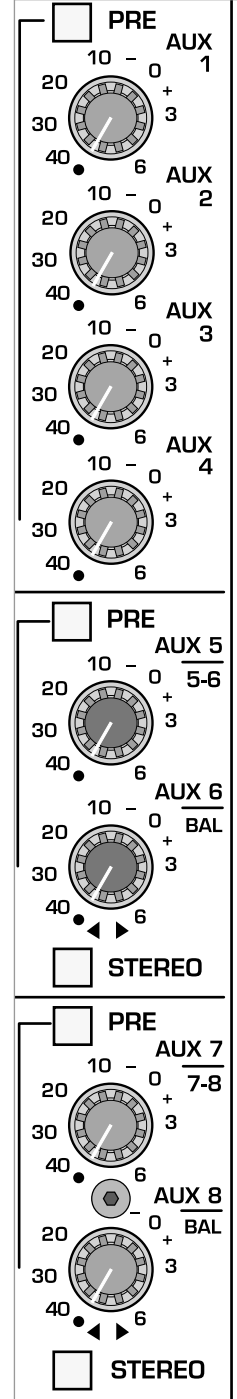
module



block diagram



panel




aux send features

The following descriptions apply to the stereo line input module when configured for stereo operation.

see—**mono input module** for mono operation

aux send 1–8 controls


 These knobs adjust the amount of signal sent the AUX buses. AUX 1–4 are fed from a summed-mono source. AUXES 5–8 are also fed from this mono source, but can be switched to stereo operation.

see—**stereo balance**

aux 1-4, 5/6 and 7/8 pre-fader—PRE

The default signal source for the AUX SENDS is post-fader. These switches select a pre-fader source for their respective auxes. The pre-fader signal is derived post-mute and post-eq.


see—**internal jumper options**

 Corresponding AUX SENDS are post-eq, post-mute and post-fader.

 Corresponding AUX SENDS are post-eq, post-mute and pre-fader.


stereo balance 5 and 6—STEREO

 AUX 5 and 6 are mono.

 AUX 5 control acts as a left and right level-control and AUX 6 control acts as a left/right balance-control.

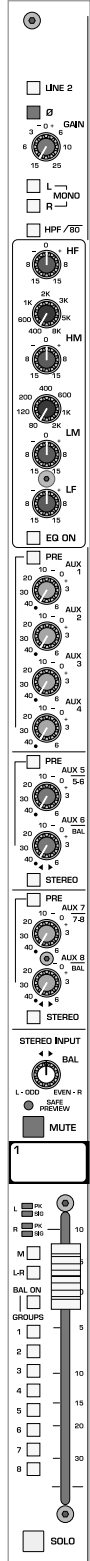
stereo balance 7 and 8—STEREO

 AUX 7 and 8 are mono.

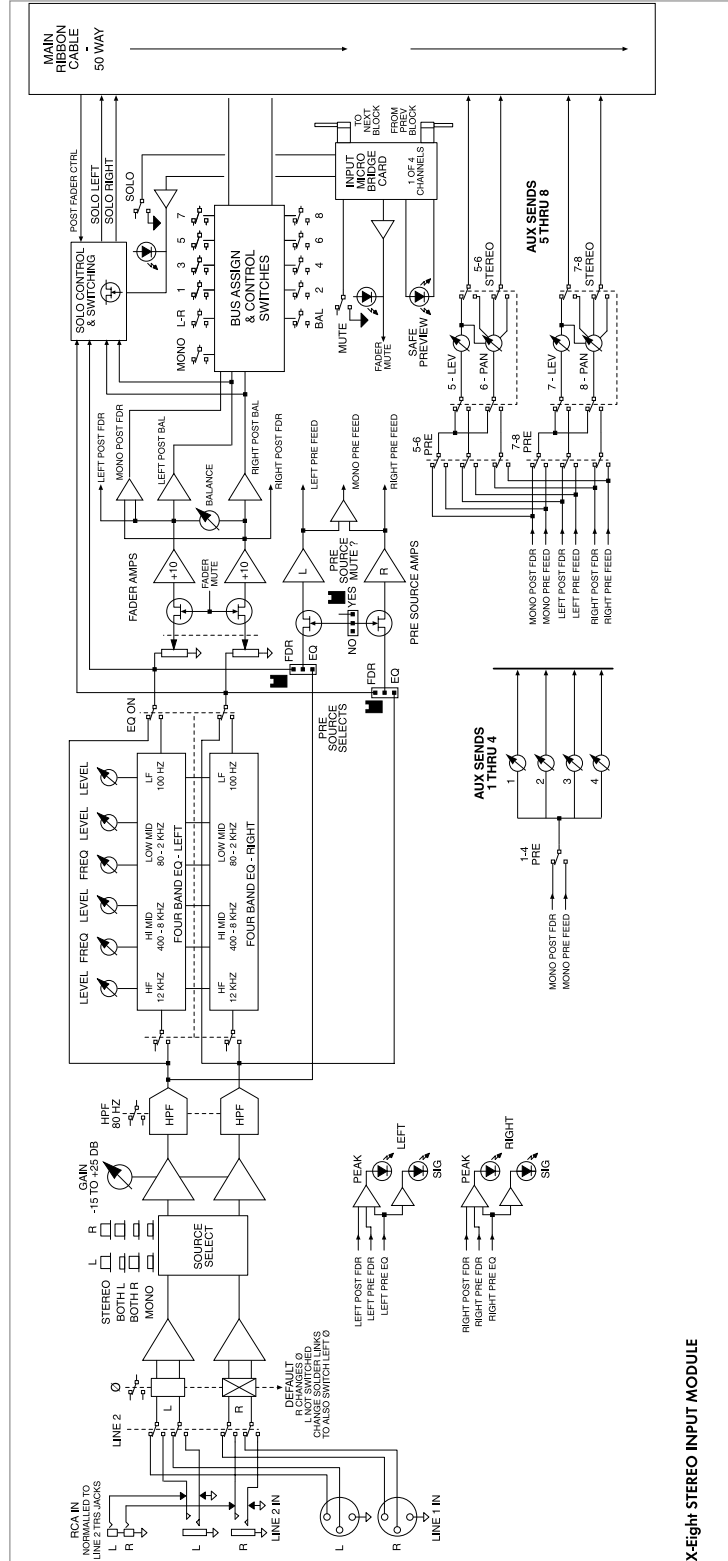
 AUX 7 control acts as a left and right level-control and AUX 8 control acts as a left/right balance-control.

2 stereo input module

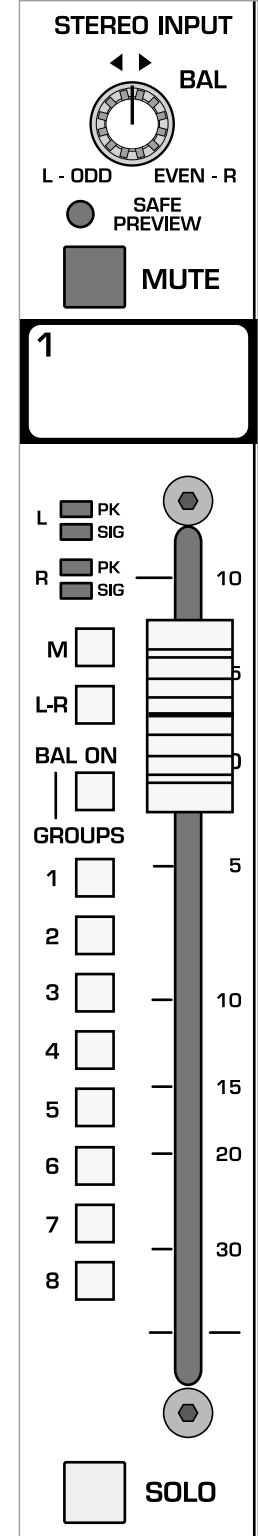
module



block diagram



panel



bus assignment features

balance control

 The Balance control adjusts the Stereo balance for Left/Right and the Group Assignment section when in Balance mode.

When the Stereo Line Input module is being used as a Mono input, both (left and right select switches depressed) the Balance control functions as a Pan control.

safe preview LED

see—**mono input module** for full description

mute

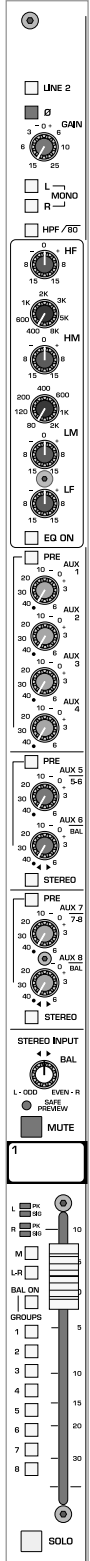
see—**mono input module** for full description

write-in label

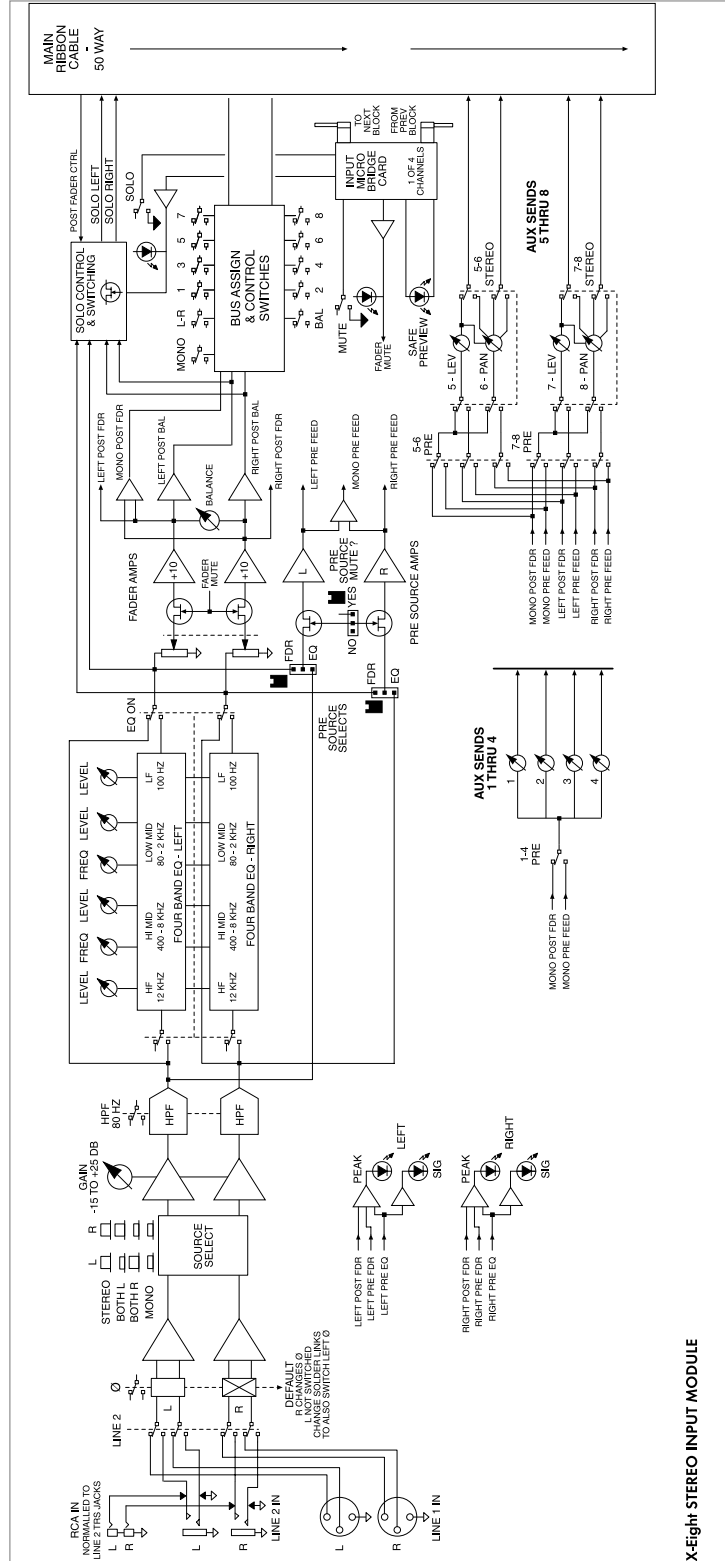
This label may be written on with a grease-marker, and later wiped clean with a cloth moistened with isopropyl/rubbing alcohol.

2 stereo input module

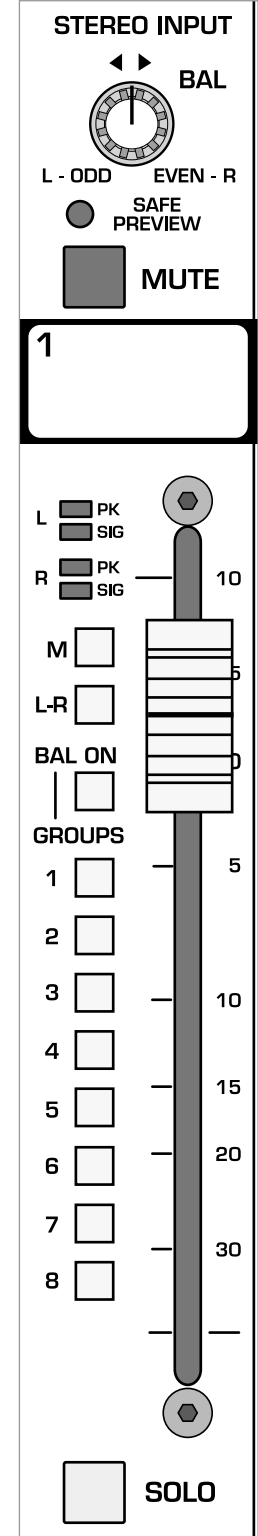
module



block diagram




panel




bus assignment features


peak indicator—A separate PK and SIG LED is provided for left and right

 The input signal is monitored at several points throughout the channel. These points are the mic preamp, the EQ stage and the fader stage. Overloads at any of these stages will cause the red peak-LED to light. Then the channel gain should be reduced.


signal present indicator—SIG

 This green-LED varies in brightness in response to signal levels between -40 dB and -6 dB.


mono assignment—M

 The input signal is assigned to the discrete mono bus. Left and right signals are summed to make up the mono or center signal.

left/right assignment—L/R

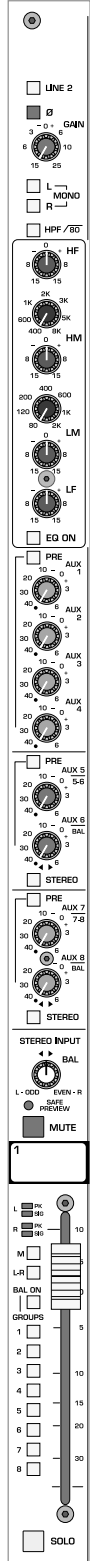
 The stereo input signals are assigned directly to the main left and right output buses.

The proportion of left vs. right can be adjusted by the BALANCE control.

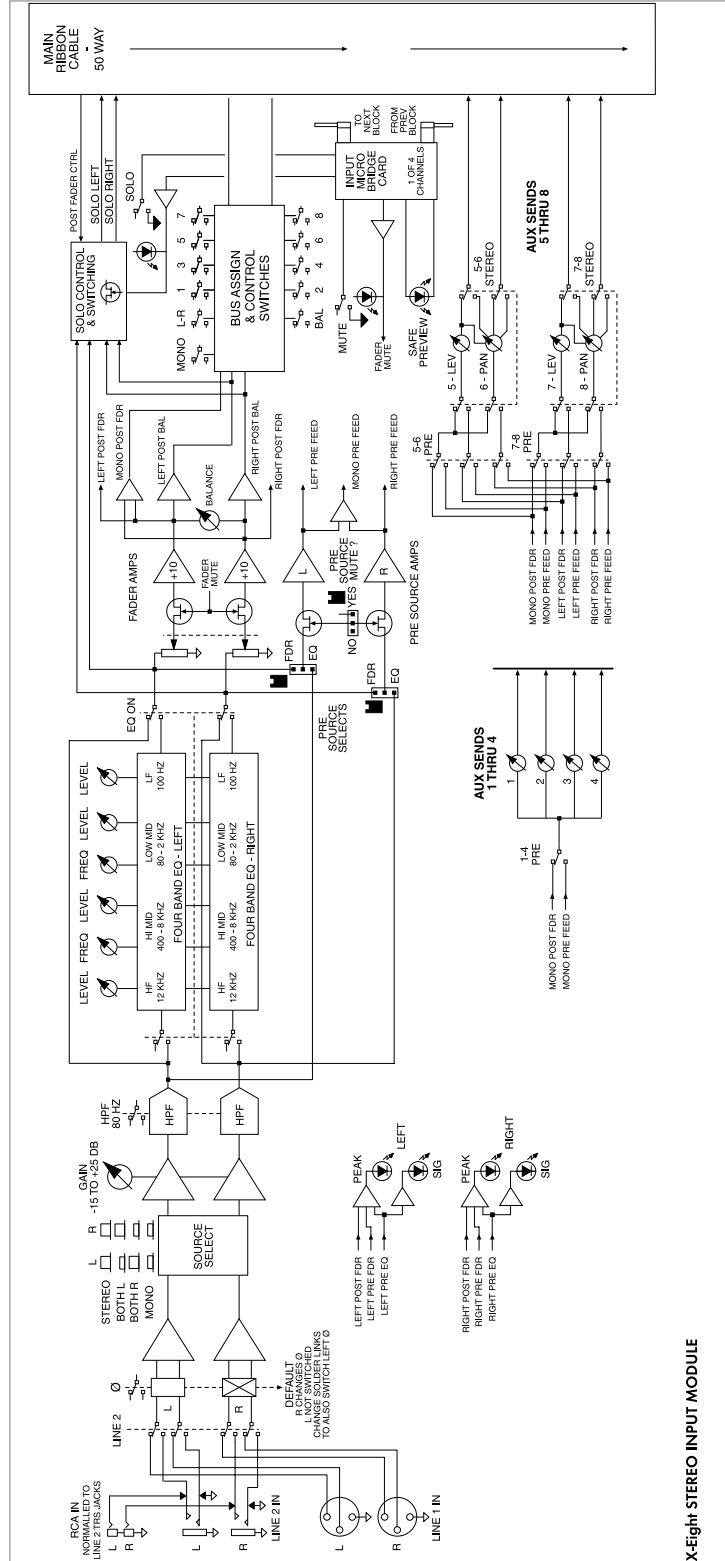
Best operation occurs when the green LED is brightly illuminated and the red LED occasionally flickers. 

2 stereo input module

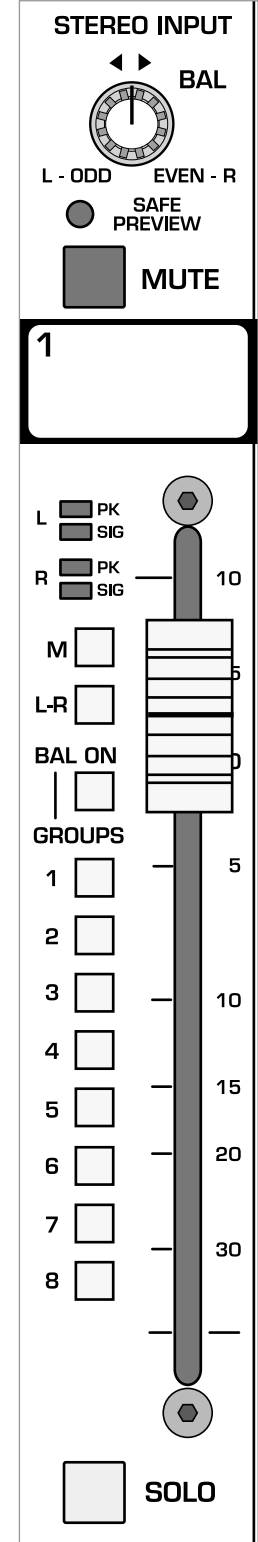
module



block diagram





panel



bus assignment features


balance on—groups—BAL ON

 The left and right signals are summed as mono to make up the group assignment signals.

 The left and right signals are assigned in stereo to the groups in odd/even pairs. GROUP assignment switches 1, 3, 5 and 7 carry the left input-signal and GROUP assignment switches 2, 4, 6 and 8 carry the right input-signal.

The proportion of left vs. right can be adjusted by the BALANCE control.

group 1–8 assignment


 The input channel's post-fader signal is assigned to the corresponding GROUP bus(es).

see—**balance on—groups**

input fader

The input fader is the primary level control for signals being sent to any of the console's mix buses. The only signals not affected are AUX sends selected to be pre-fader. The fader offers greater than 80db of attenuation and up to 10db of boost. Normal operation is between -10 and 0.

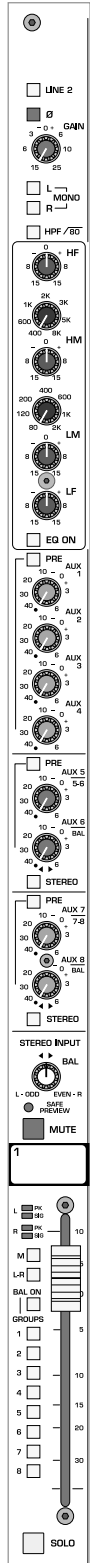
solo

 Pressing this switch will include (illuminated) or exclude (not-illuminated) the input channel from the console's SOLO system. The channel is Solo'd in stereo.

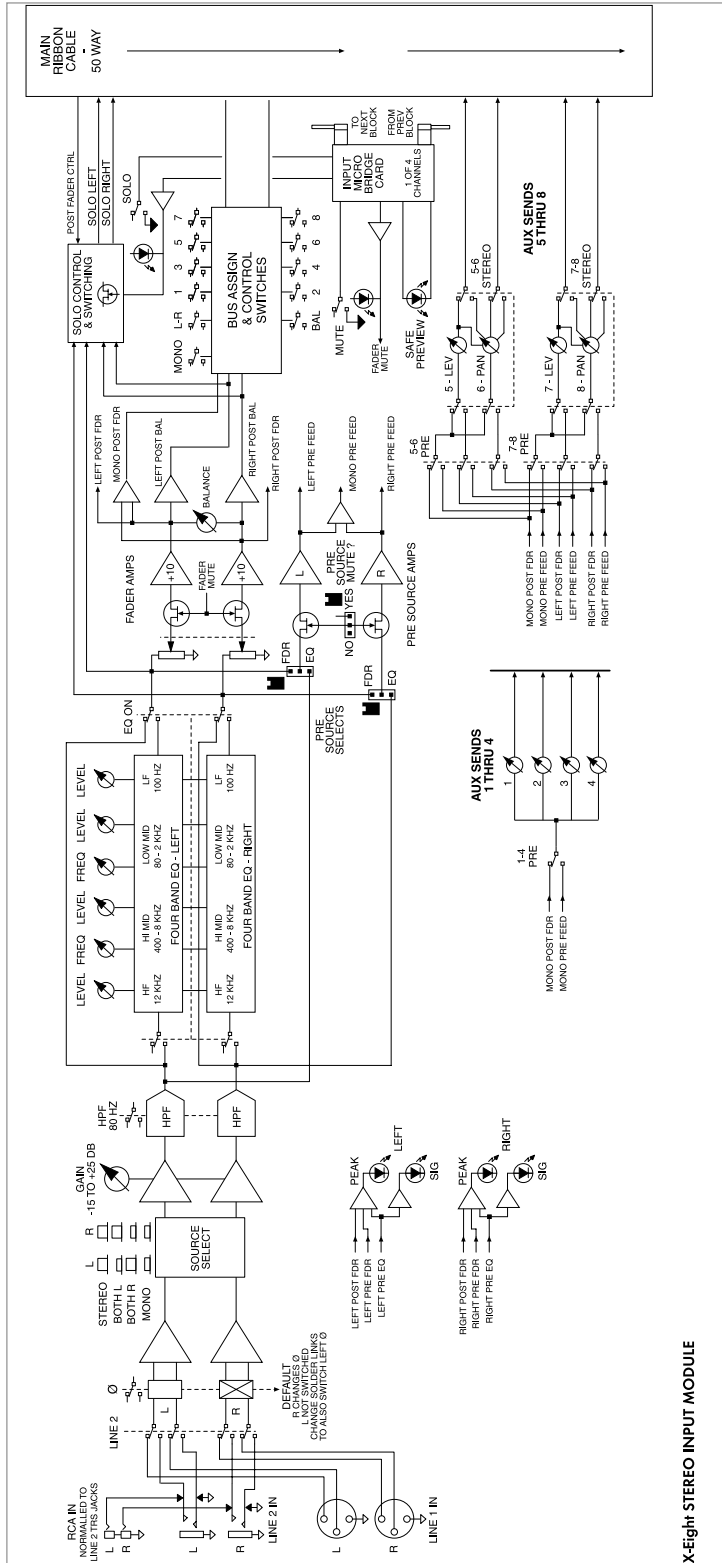
see—**master module**, solo control system

2 stereo input module

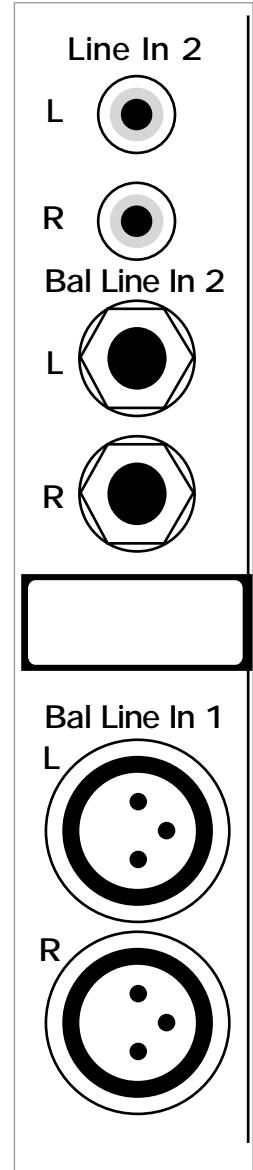
module



block diagram



panel



X-Eight STEREO INPUT MODULE

rear panel features

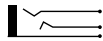
The stereo line-input module provides connectors for three stereo line-level signals.

see—**line 2** switch.



balanced left and right line-in XLR connectors

These two jacks accept balanced or unbalanced +4dB line level signals. The LINE 2 switch on front-panel must be disengaged for these connectors to be active.



line-input left and right 1/4" TRS jacks

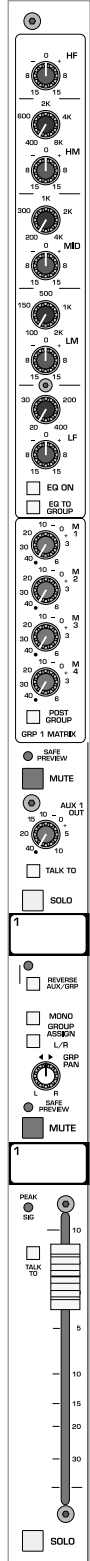
These two jacks accept balanced or unbalanced line level signals. The LINE 2 switch on front panel must be engaged for these jacks to be active.

line-input left and right RCA connectors

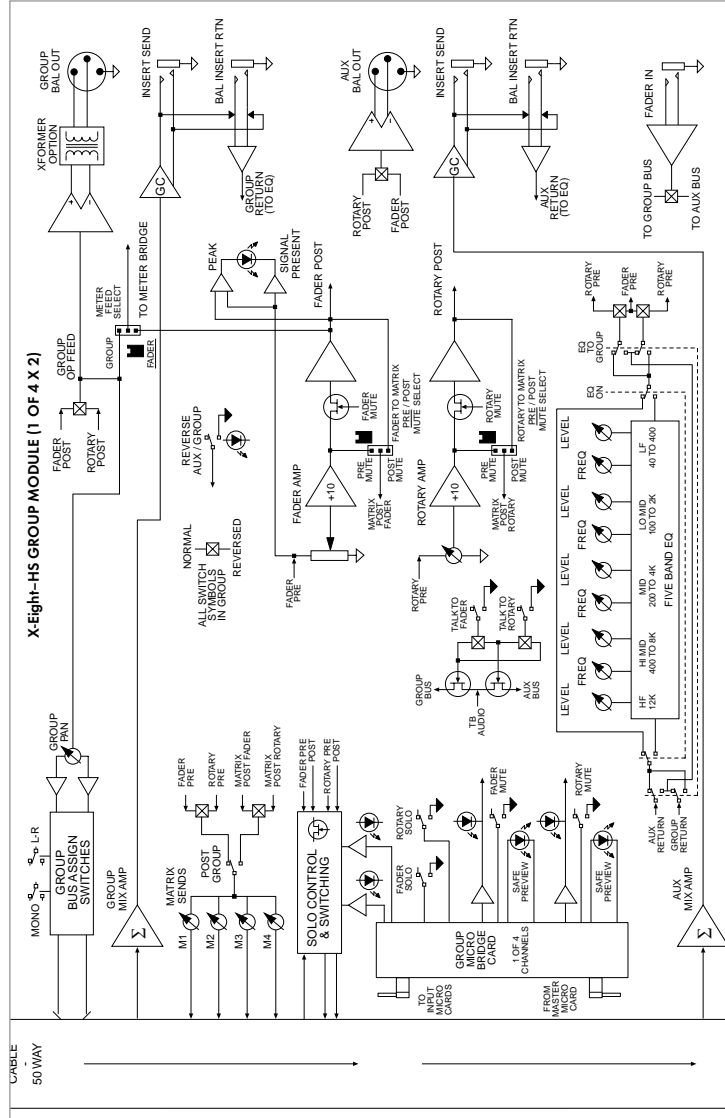
These two jacks accept unbalanced line-level signals. They are active when the LINE 2 switch on front-panel is engaged and nothing is plugged into the corresponding left or right 1/4" TRS jack(s).

3 group HS module

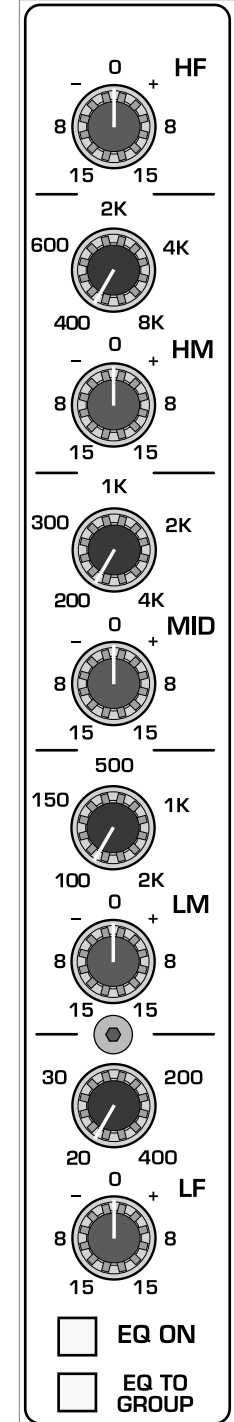
module



block diagram



panel




output eq features


The HS output-section includes twelve output-equalizers occupying the upper portions of the eight GROUP sub-modules and the four MASTER sub-modules.

By using designated assignment switches, output eq's can be fed by the eight AUXES or GROUPS, the four matrix masters or left, right, and mono masters. Each eq features five-bands of equalization, making them ideal for feeding on-stage or in-ear monitors.

high frequency—HF


 15dB boost and cut at 12kHz—shelving response.

high-mid frequency—HM

 Selectable frequency range of 400Hz to 8 kHz.
The response is bell-shaped with a fixed Q of 1.5


 15dB boost and cut.

mid frequency—MID

 Selectable frequency range of 200Hz to 4kHz.
The response is bell-shaped with a fixed Q of 1.5


 15dB boost and cut.

low-mid frequency—LM

 Selectable frequency range of 100Hz to 2kHz.
The response is bell-shaped with a fixed Q of 1.5

 15dB boost and cut.

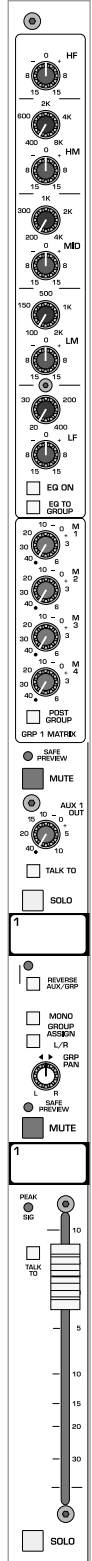
low frequency—LF

 Selectable frequency range of 20Hz to 400Hz.
The response is bell-shaped with a fixed Q of 1.5.

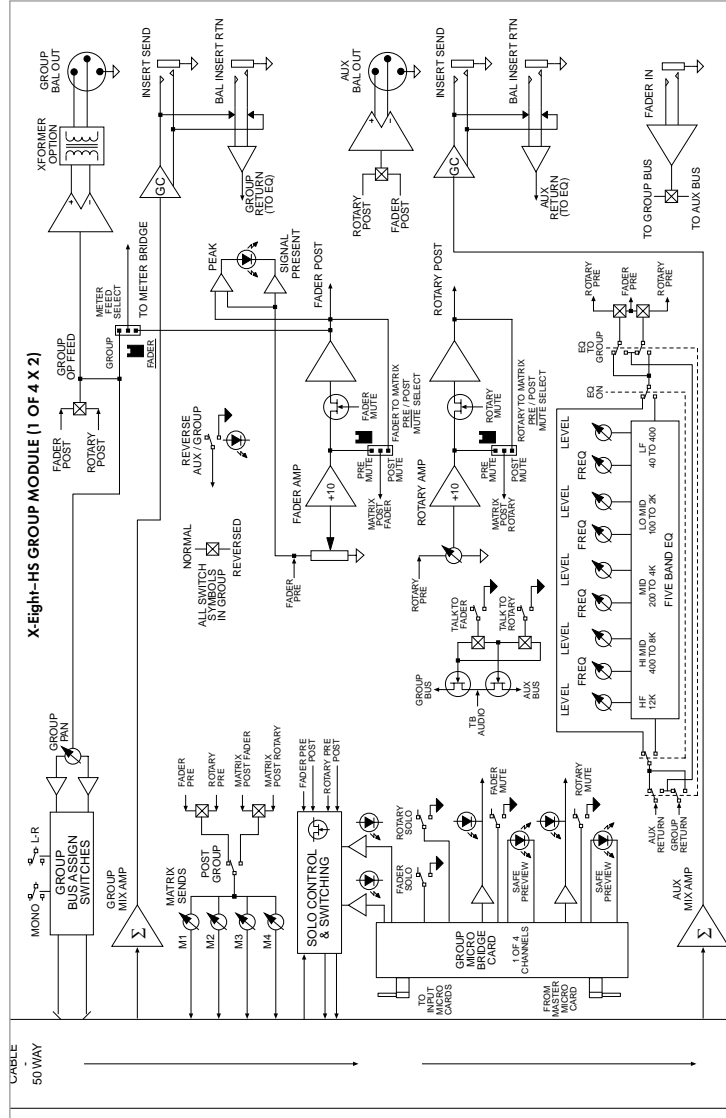
 15dB boost and cut.

3 group HS module

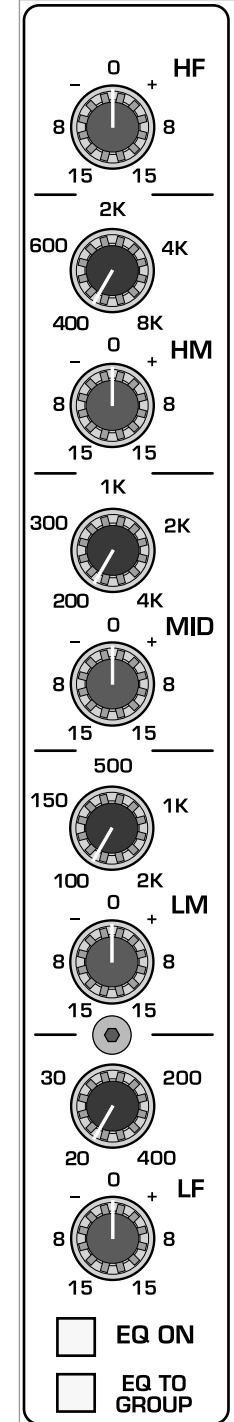
module



block diagram




panel



output EQ features

equalizer—EQ ON

 Equalizer is **on**. This switch can be used to make A/B comparisons between "flat" and eq'd signals.


This switch can be used to make A/B comparisons of "flat" and EQ'd signals.



group equalization —per output channel—EQ TO GROUP

This switch selects the signal path for the eq.


 eq to AUX MASTERS

 eq to GROUPS


matrix features


The X-Eight HS includes four MATRIX outputs. Each of these outputs can be made up of signals from the eight GROUPS; the left, right and mono buses; and an external source.

matrix 1–4 levels—M1, M2, M3, M4

 These level controls are used to mix the group's signal into the corresponding matrix.

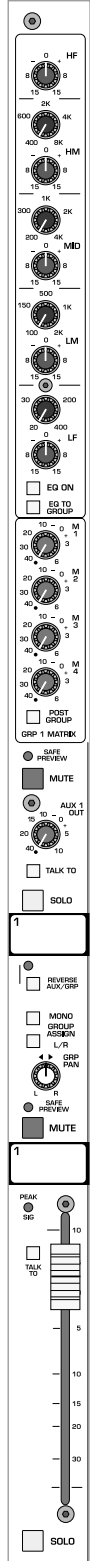
post-group

 The GROUP fader setting has no effect on the group-to-matrix level controls 1–4.

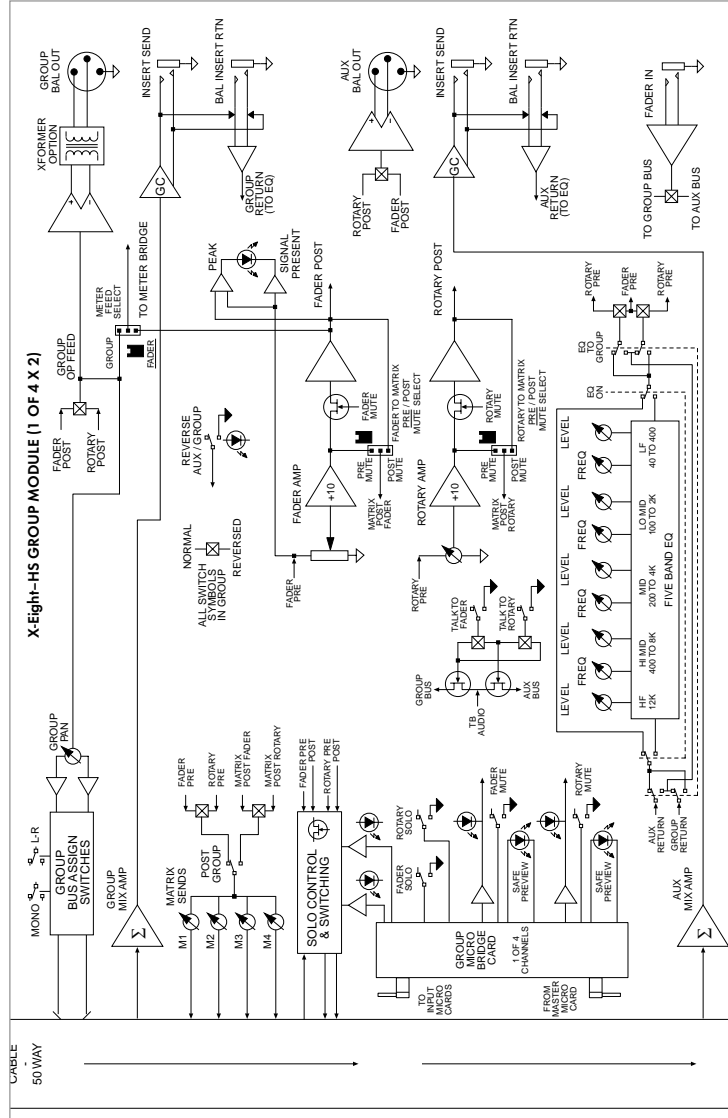
 The GROUP fader is introduced into the signal path. When the group is muted, the matrix level controls 1–4 are muted as well.

3 group HS module

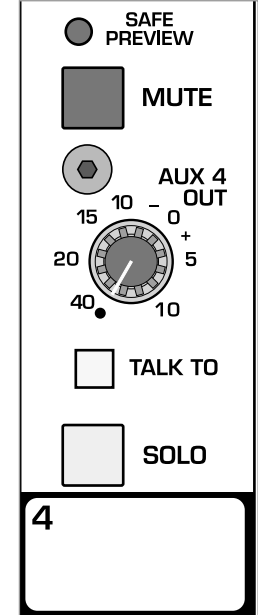
module



block diagram



panel



aux master output features

This section includes the standard output features for AUX SENDS 1–8.


safe preview LED

see—**mono input module** for full description


mute

see—**mono input module** for full description


aux 1–8 output level

 The AUX MASTER output level controls set the levels that appear at the corresponding AUX output connectors on the rear-panel.

talk to—aux 1–8

 Adds the TALKBACK system output to the associated AUX output. The level of the TALKBACK signal is set by the TALKBACK level control in the MASTER section.

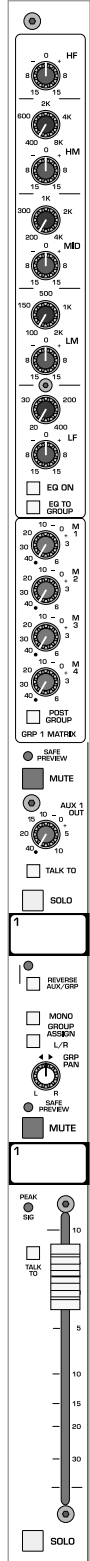
solo

 Pressing this switch will include when illuminated or exclude when not illuminated the AUX from the console's SOLO system.

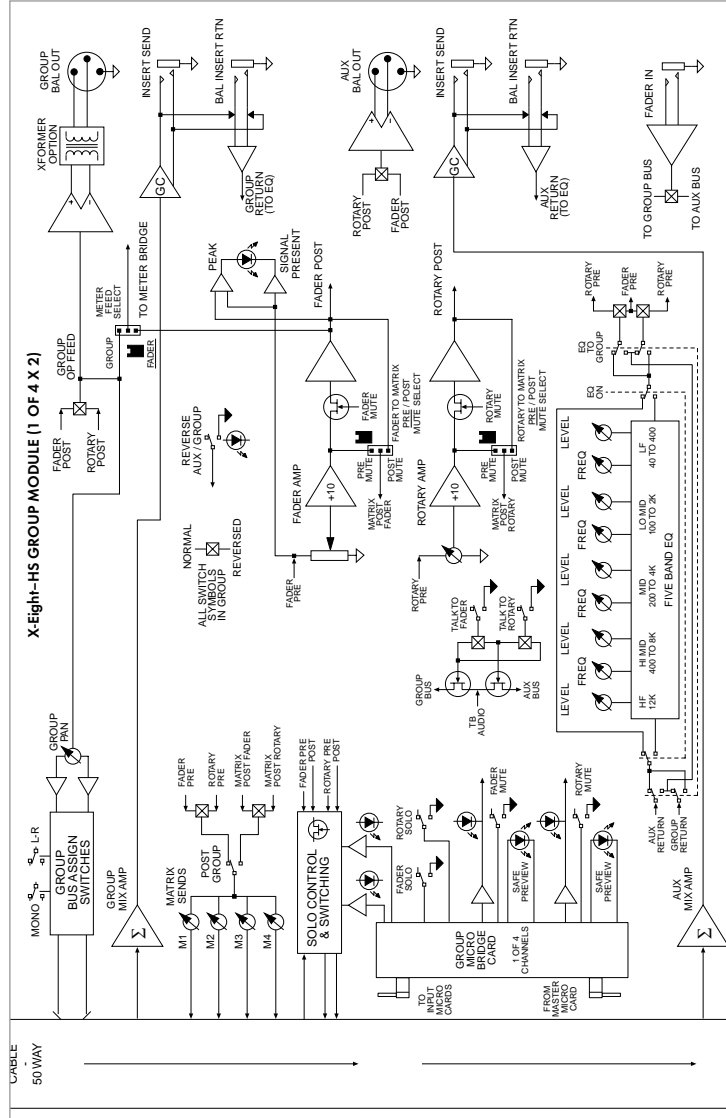
see—**master module**, solo control system

3 group HS module

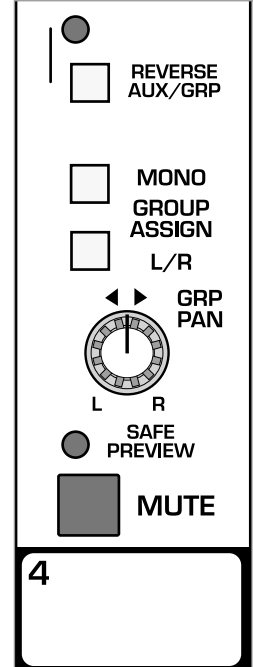
module



block diagram



panel



reverse aux /group


The REVERSE AUX / GROUP feature is used to swap the functions of the AUX MASTER controls and the GROUP MASTER controls.

Swapped controls include: the TALK TO switch, the SOLO switch, the MUTE switch, the SAFE PREVIEW LED and the MASTER LEVEL control (via rotary control on the AUX MASTER and a fader on the GROUP MASTER).

reverse aux / group

 red LED off

The AUX 1–8 and GROUP 1–8 MASTER level controls, SAFE PREVIEW LED, SOLO, MUTE and TALK TO switches operate as normal in their default configuration.

 red LED on

AUX and GROUP functions are reversed.

The AUX 1–8 output levels are controlled by the output faders.

The AUX SAFE PREVIEW LED, AUX SOLO, AUX MUTE and AUX TALK TO switches apply to the GROUP output signal.

The GROUP 1–8 output levels are controlled by the rotary AUX 1–8 MASTER level controls.

The GROUP SAFE PREVIEW LED, GROUP SOLO, GROUP MUTE and GROUP TALK TO switches apply to the AUX output signal.

This is a useful feature when the mixer is being used to feed on-stage or in-ear monitors. 

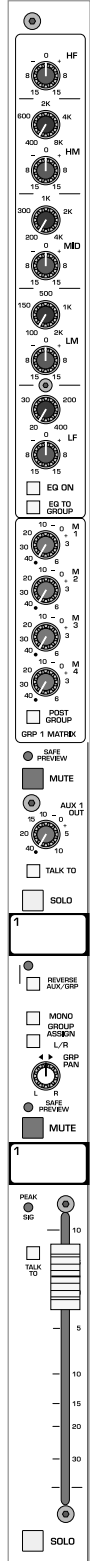
The AUX MASTER level is now controlled by the fader.

A red LED visually indicates when this feature has been selected.

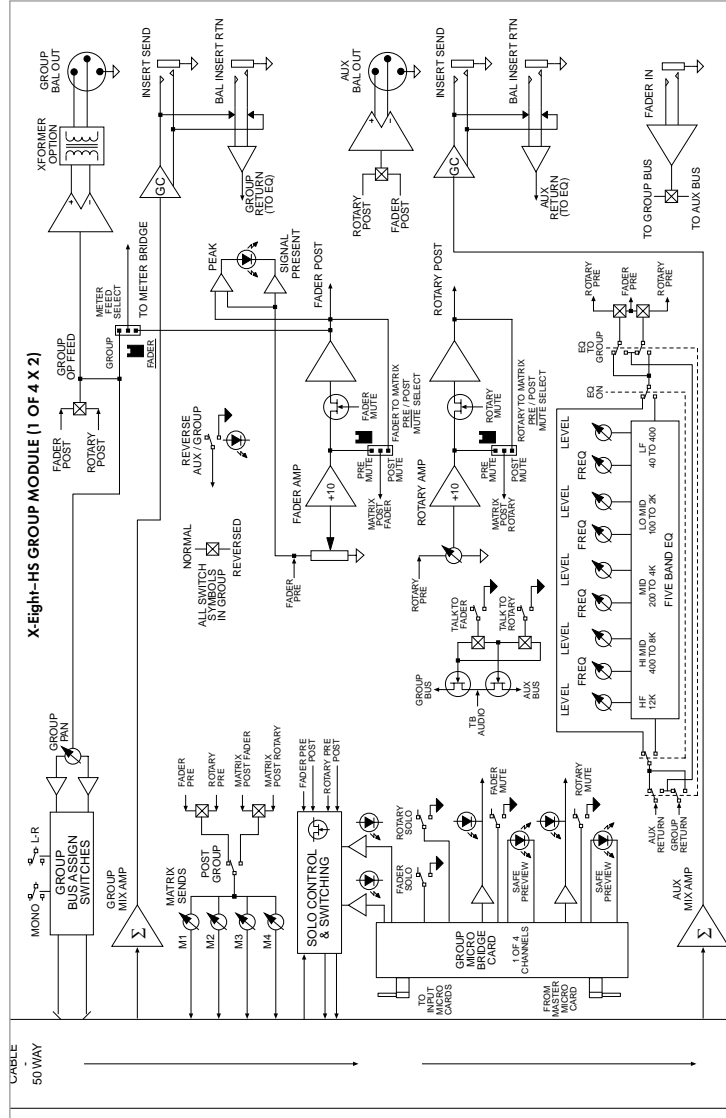
There is one switch for each of the eight AUX MASTERS / GROUP MASTERS.

3 group HS module

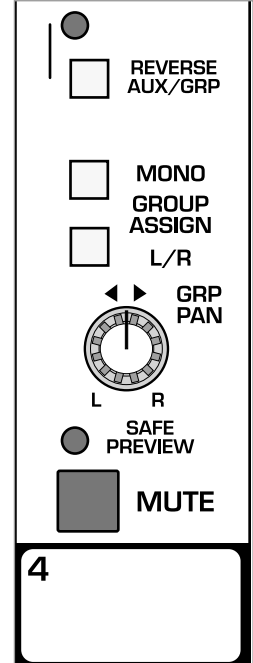
module



block diagram



panel




group assignment features


mono assignment—from group—MONO

 The GROUP signal is assigned to the discrete mono bus.

left/right assignment—from group—L/R

 The GROUP signal is assigned to the main left and right output buses.

pan

 The PAN pot is used to position the group signal within the stereo left / right field. The signal must be assigned to left and right in order for the PAN control to have any effect.

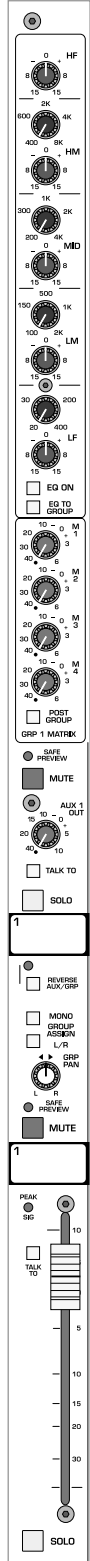
safe preview LED

see—mono input module

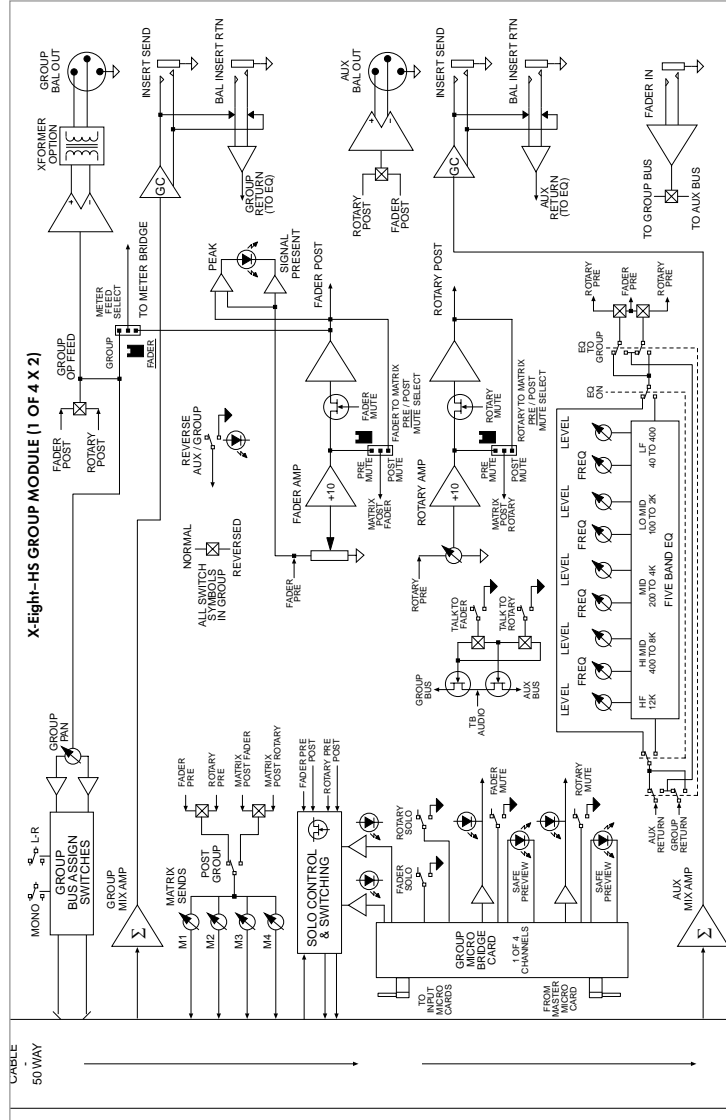
mute

see—mono input module

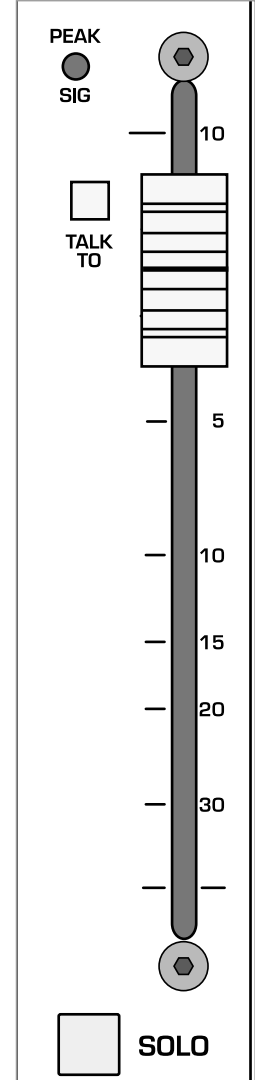
module



block diagram




panel




group/aux level features

signal/peak LED's

 This dual color LED responds to the pre-fader signal. It illuminates green with varying brightness in proportion to the audio signal. When the signal approaches clipping, either pre or post fader, the LED illuminates red.


talk to—fader 1–8

 This switch adds the TALKBACK system output to the fader signal. The level of the TALKBACK signal is set by the TALKBACK level control in the MASTER section.

fader

The fader normally controls the level at which the GROUP signal is sent to any assigned buses or outputs. When the REVERSE AUX/GROUP switch is selected, the fader controls the level of the AUX output.

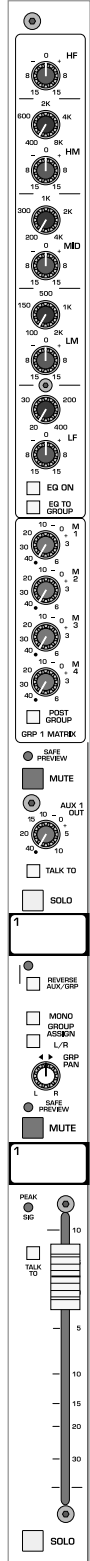
solo

 Pressing this switch will include or exclude the fader signal from the console's SOLO system.

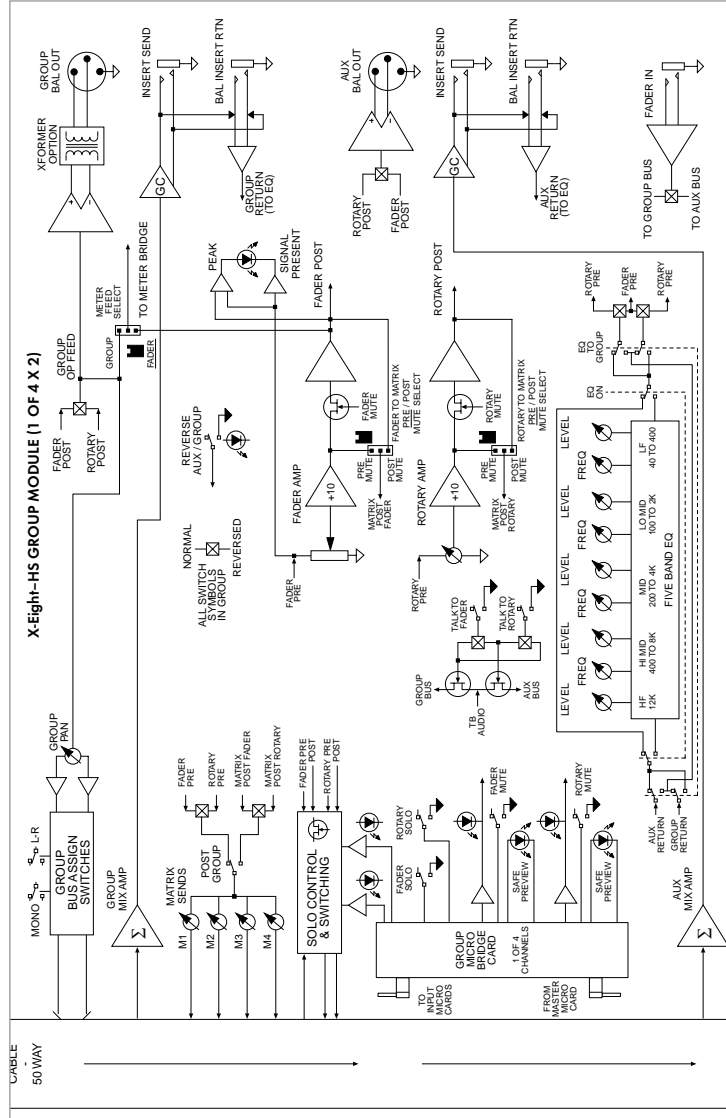
see—**master module**, solo control system

3 group HS module

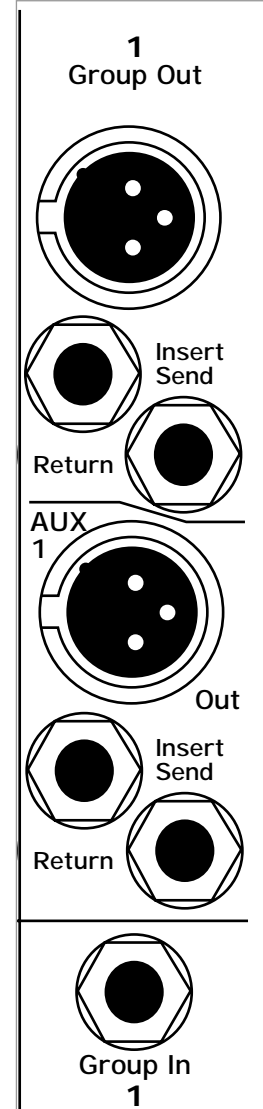
module



block diagram



panel



rear panel features

group output



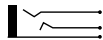
This balanced male XLR connector carries the GROUP output signal.

see—**group fader**, front-panel description

group insert point


Separate 1/4" TRS jacks provide the ability to insert an external signal processor into the signal path of the GROUP.

group insert send



This output connects to the input of an external signal processor. The signal is derived after the group-summing amplifier.


This output is ground compensated.

Plugging a 1/4" plug into this jack does **not** break the internal signal flow of the Group. 

group insert return

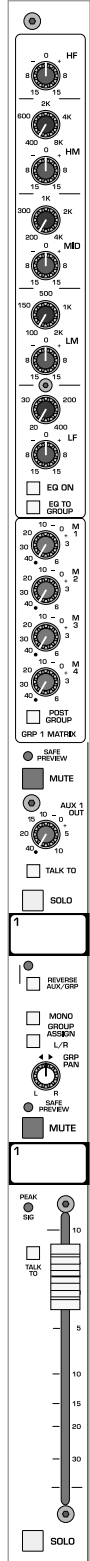


This balanced input accepts a signal from the output of an external signal processor. It accepts either balanced or unbalanced signals.

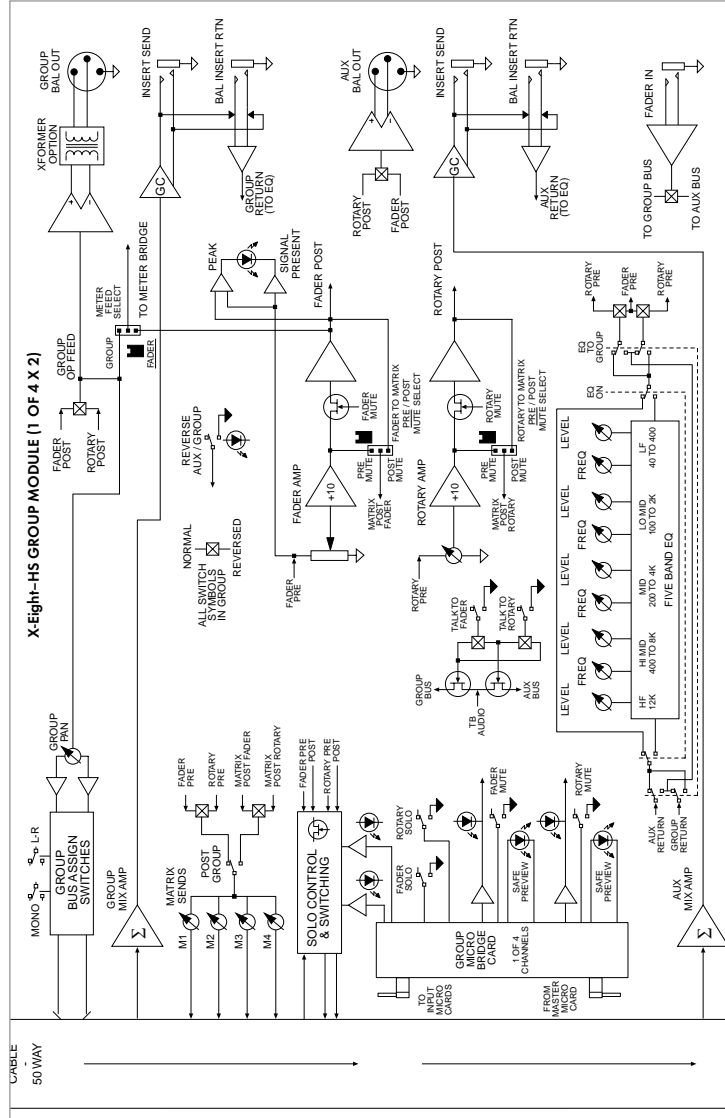
Plugging a 1/4" plug into this jack **breaks** the signal flow of the Group. 

3 group HS module

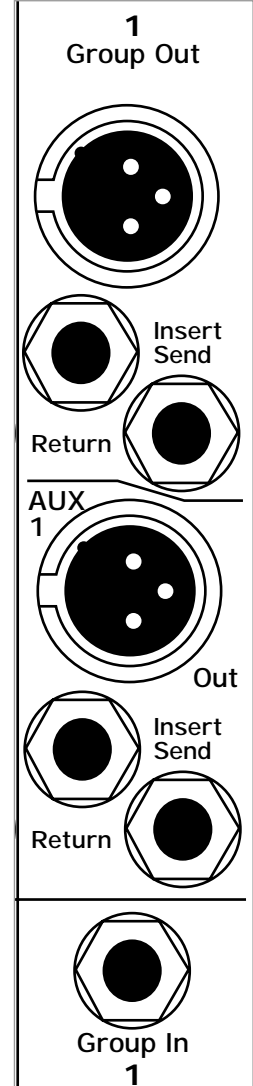
module



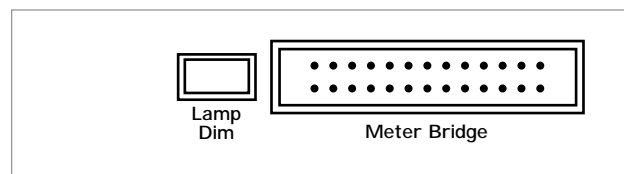
block diagram



panel



lamp dim / meterbridge connectors



rear panel features

auxiliary 1–8 output XLR's



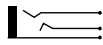
This balanced male XLR connector carries the AUX output signal. These outputs are controlled by their respective AUX output level controls.

see—**aux** section, front panel description

aux insert point

Separate 1/4" TRS jacks provide the ability to insert an external signal processor into the signal path of the AUX.

aux insert send



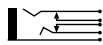
This output connects to the input of an external signal processor. The signal is derived after the AUX-summing amplifier.

This output is ground compensated.

Plugging a 1/4" plug into this jack does **not** break the internal signal flow of the AUX BUS.



aux insert return



This balanced input accepts a signal from the output of an external signal processor. It accepts either balanced or unbalanced signals.

Plugging a 1/4" plug into this jack **breaks** the signal flow of the Group.



group inputs 1–8

These 1/4" TRS jacks accept balanced or unbalanced line-level signals. They act as external inputs for GROUPS 1–8.

lamp dim



Goose-neck lamps light-up at full intensity.



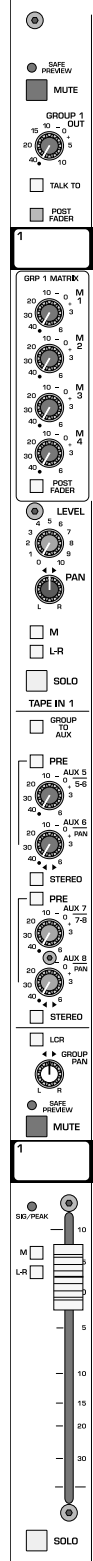
Goose-neck lamps light-up at medium intensity.

meterbridge connector

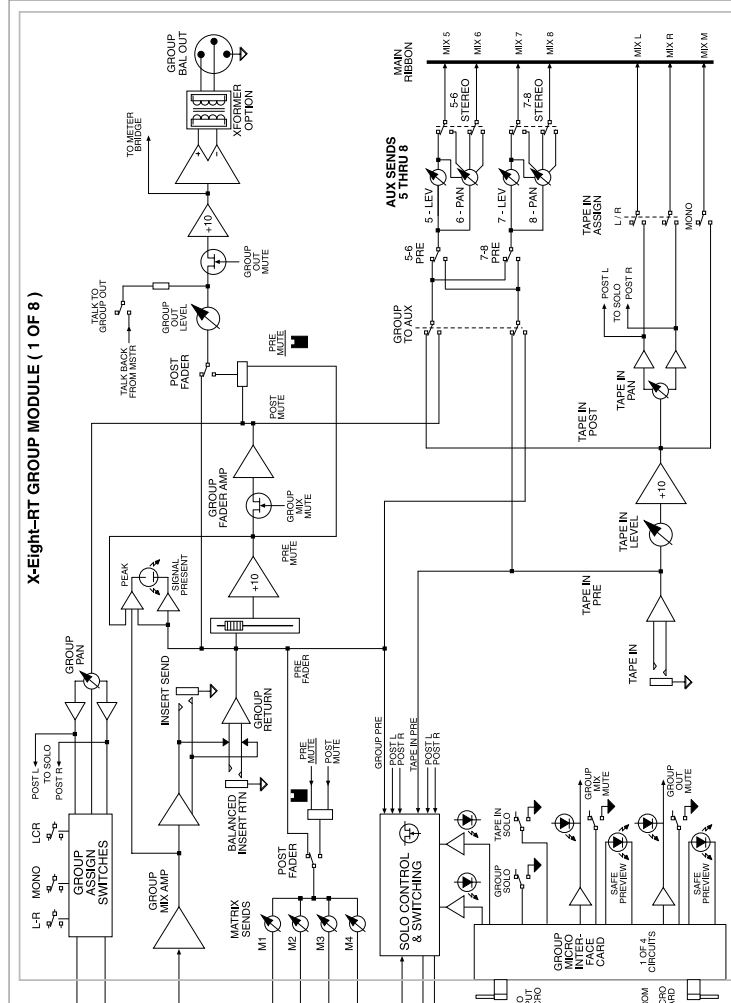
This connector carries all of the required connections up to the meter-bridge.

4 group RT module

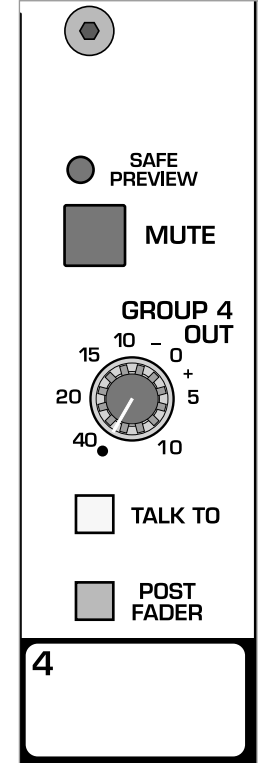
module



block diagram



panel



group output control features

This section controls signals sent to the GROUP OUTPUT XLR on the rear panel.


safe preview—LED

see—mono input module

mute


see—mono input module

group output level control


 This control is used to adjust the signal level at the GROUP OUTPUT XLR.


Note: The GROUP METER follows this signal.

talk to

 The TALKBACK system output is added to the GROUP OUTPUT. The level of the TALKBACK signal is set by the TALKBACK level control in the master section.

post-fader

 The group fader setting has no effect on the group output level.

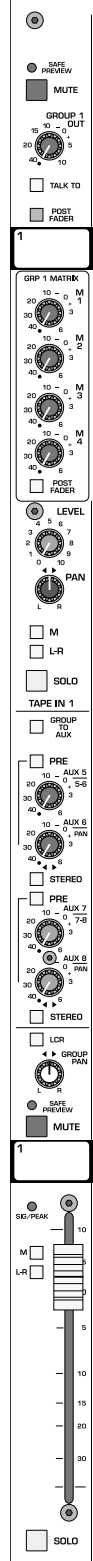
 The group fader is inserted into the group output signal path.

write-in label

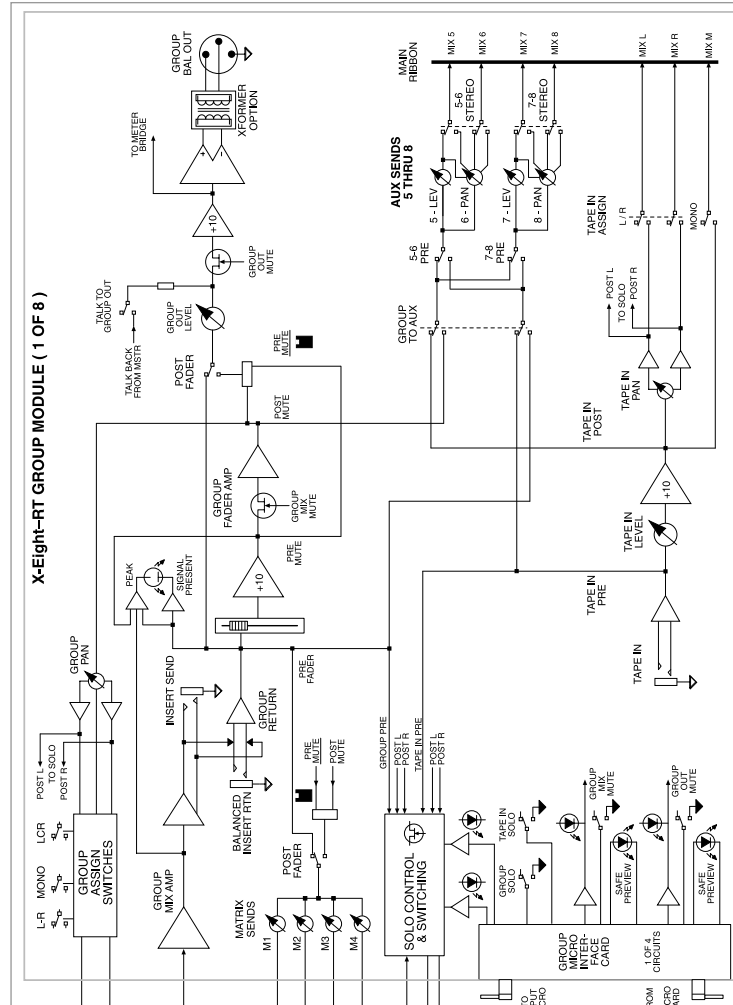
This label may be written on with a marker, and later wiped clean with a cloth moistened with isopropyl/rubbing alcohol.

4 group RT module

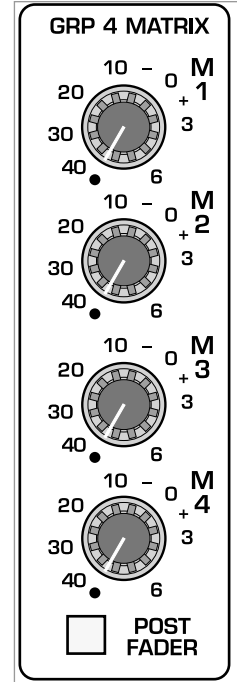
module



block diagram




panel




matrix features


The X-Eight RT includes four MATRIX outputs. Each MATRIX mix can draw signals from the eight GROUP buses; the left, right, and mono buses; and an external source.

matrix 1–4 level controls

 These level controls are used to mix the GROUP's signal into the corresponding MATRIX.

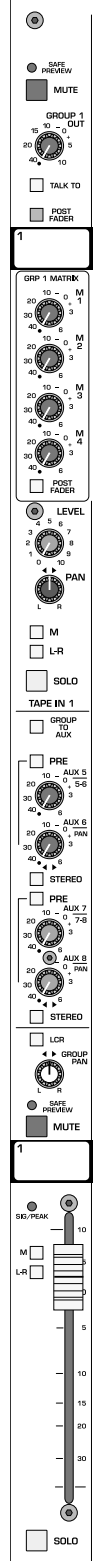
post-fader—recessed

 The GROUP fader setting has no effect on the GROUP-to-MATRIX 1–4 level controls.

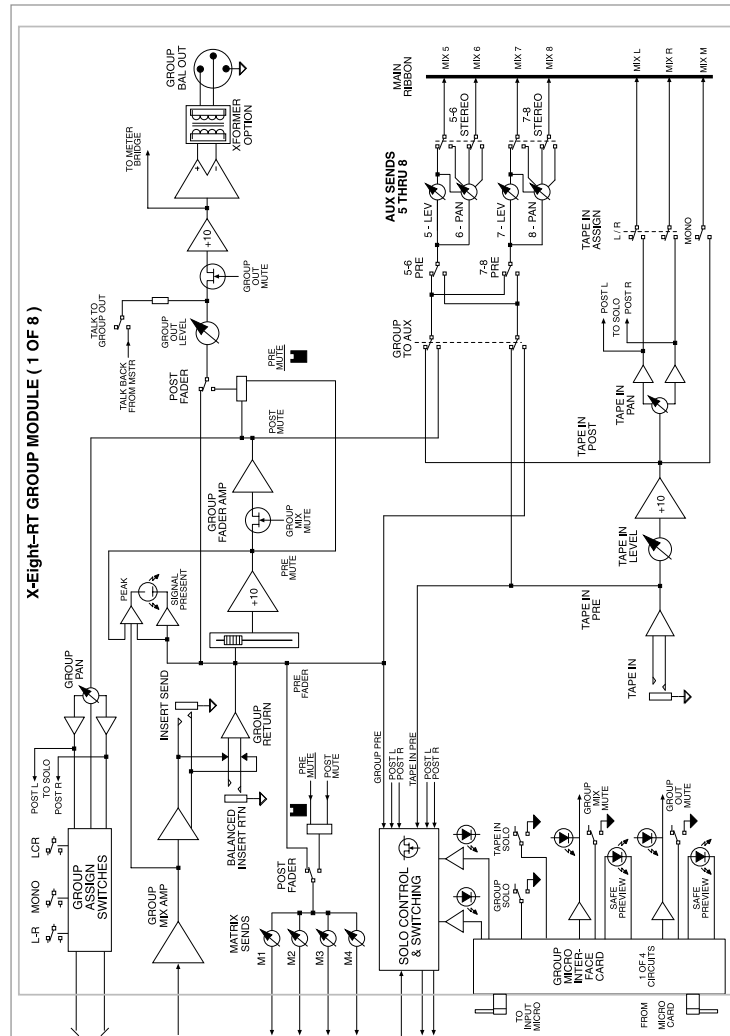
 The GROUP fader is introduced into the signal path. When the GROUP is muted, the MATRIX 1–4 level controls are muted as well.

4 group RT module

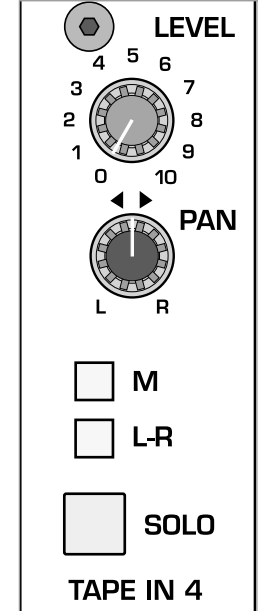
module



block diagram



panel




external tape input assignment features

Each of the eight **GROUP** sub-modules includes a **TAPE-IN** section, although this section is not directly associated with the **GROUPS**.


Its function is to provide a line return (or input) that can be assigned to the left, right and mono outputs.

These inputs also act as the source for the **AUX SENDS 5–8** section located directly below the **TAPE-IN** section.

level

 This control sets the signal level brought in through the **TAPE-IN** jack on the rear panel.


pan

 When the **TAPE-IN L/R** assignment switch is depressed, the **PAN** control is used to position the signal within the stereo field.


mono assignment

 The **TAPE-IN** signal is assigned to the discrete mono bus.

left/right assignment—L/R

 The **TAPE-IN** signal is assigned to the main left and right output buses.

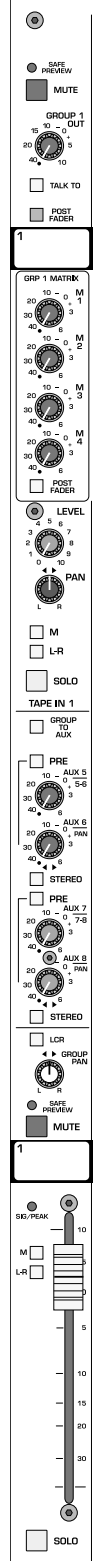
solo

 Pressing this switch will include (illuminated) or exclude (not illuminated) the **TAPE-IN** signal from the console's **SOLO** system.

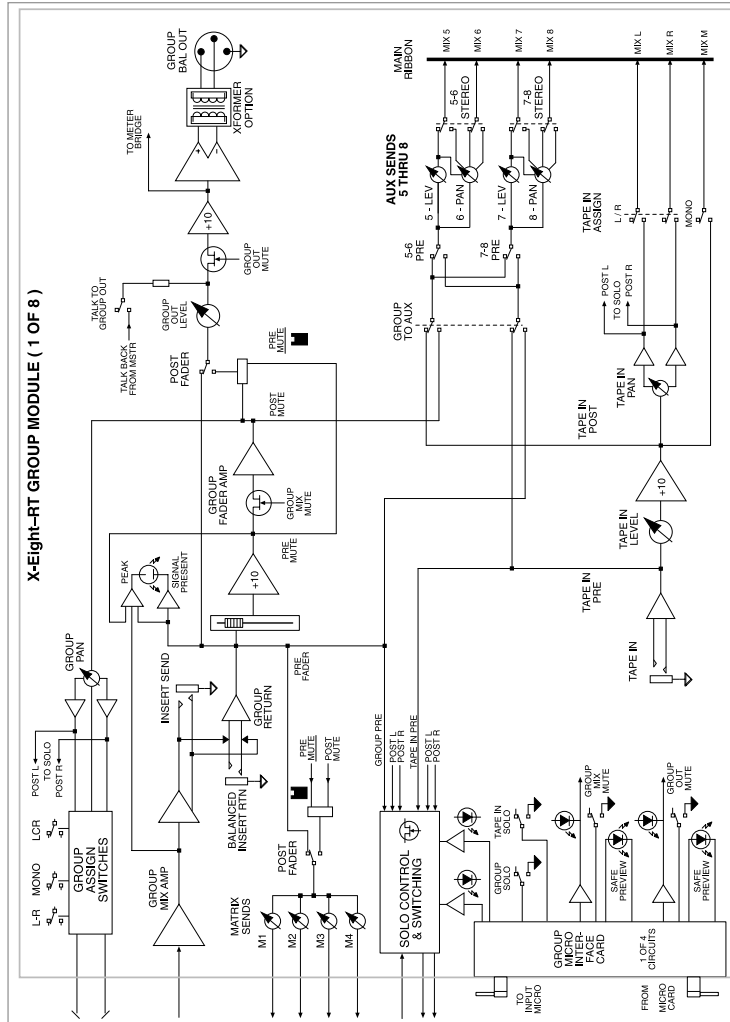
see—**master module**, solo control system

4 group RT module

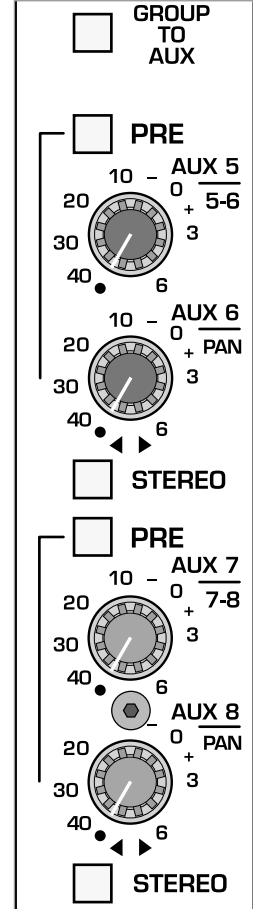
module



block diagram



panel



aux/group assignment features

aux sends 5–8

This section is used to send signals to AUXES 5 through 8. The aux signals can originate from the TAPE-IN section or the GROUP section, pre- or post-fader depending on settings of the switches below.

group-to-aux assignment—GROUP TO AUX

AUX SENDS 5–8 receive signals from the TAPE RETURN section, directly after the TAPE RETURN level control.

AUX SENDS 5–8 receive signals from the GROUP section, directly after the GROUP fader.

aux stereo 5/6 and 7/8

The default configuration for AUXES 5, 6, 7 and 8 is mono. These switches configure the odd / even (5/6 and 7/8) AUX pairs as stereo sends.

The ODD-AUX becomes the PAN control and the EVEN-AUX becomes the LEVEL control.

corresponding AUXES are configured as individual mono sends.

corresponding AUXES are configured as LEVEL and PAN for stereo operation.

aux pre-fader 5/6 and 7/8—PRE

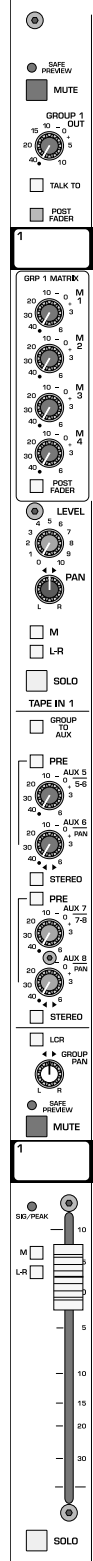
The default signal source for the AUX SENDS is post-fader. These switches are used for selecting the pre-fader signal for their respective AUXES.

corresponding AUX SENDS are post-mute and post-fader.

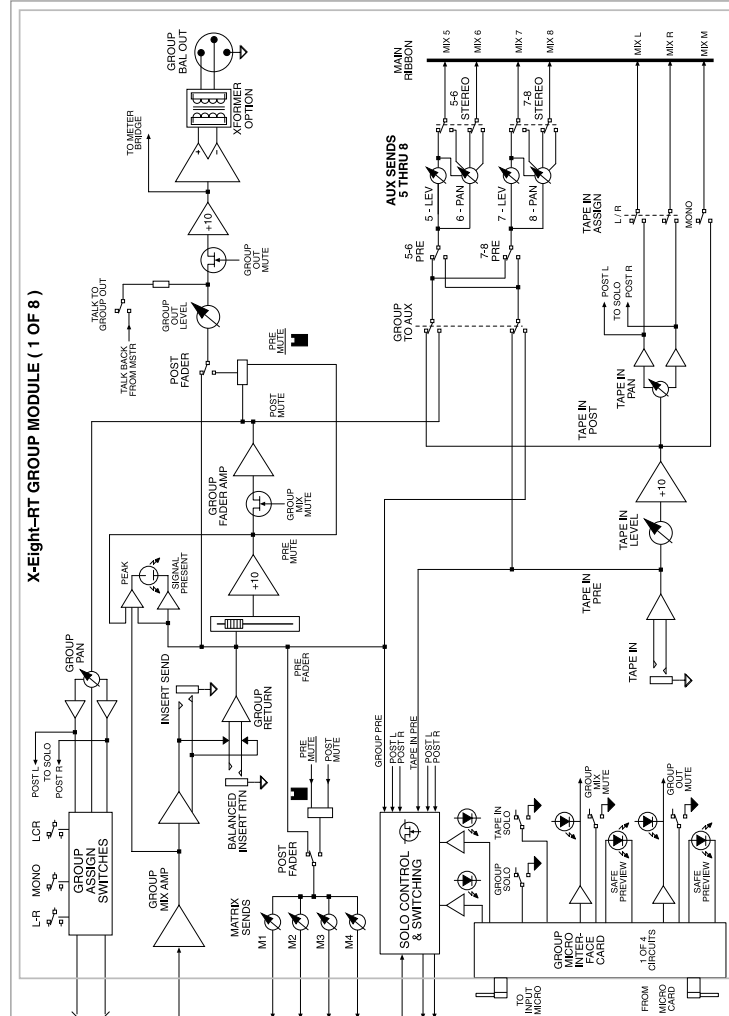
corresponding AUX SENDS are post-mute and pre-fader.

4 group RT module

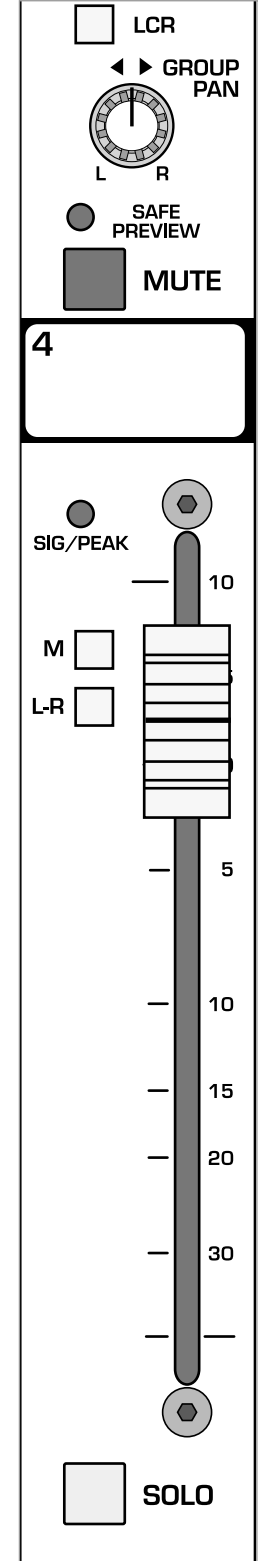
module



block diagram




panel




group/aux level features

left-center-right—LCR


 The post-fader GROUP signal is assigned to the left, right and mono/center buses. Relative amounts of the signal fed to each bus is determined by the position of the PAN pot.

pan


 The PAN pot positions the signal within the stereo left/right field, or between left-and-center or center-and-right in LCR mode. The signal must be assigned as to LCR or the L-R bus in order for the PAN control to have any affect.

see—**left-center-right** and **left/right assignment**

mono assignment—M

 The Group signal is assigned to the discrete Mono bus. When the LCR button is depressed, this switch is bypassed.

left/right assignment—L-R

 The Group signal is assigned to the main Left and Right output buses. When the LCR button is depressed, this switch is bypassed.

safe preview LED

see—**mono input module**


group mute

see—**mono input module**

write-in label

This label may be written on with a marker, and later wiped clean with a cloth moistened with isopropyl/rubbing alcohol.

signal/peak LED—SIG/PEAK

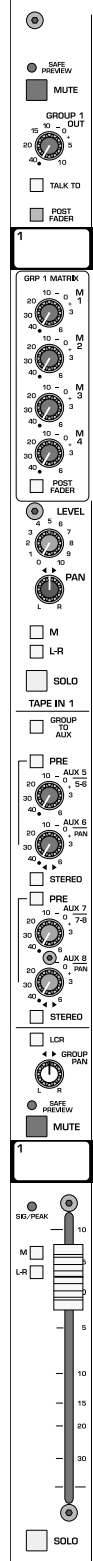
 This dual-color LED responds to the pre-fader GROUP signal. It indicates green with varying-brightness, in proportion to the audio signal. When the signal approaches clipping, either pre or post fader, the LED turns red.

group fader

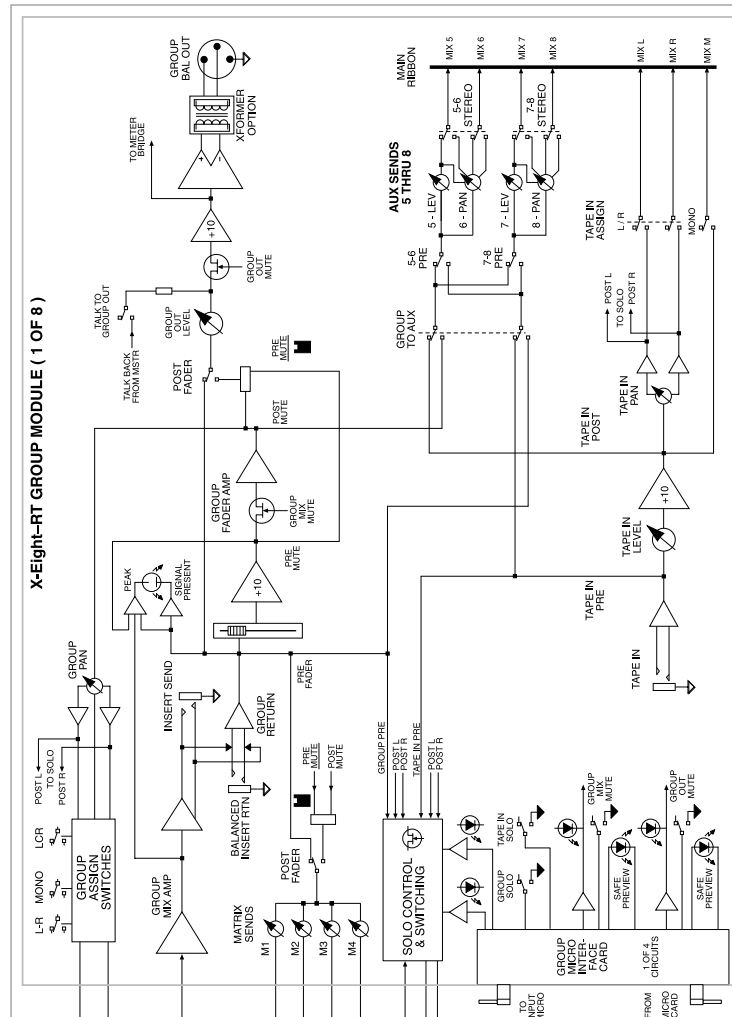
The GROUP fader controls the level at which the GROUP signal is sent to any assigned mix-buses or outputs.

4 group RT module

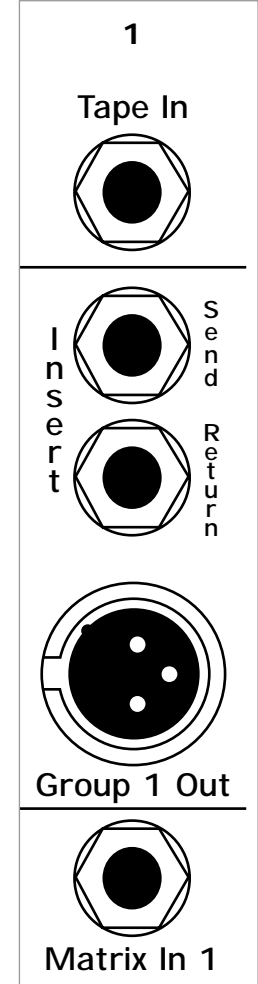
module



block diagram



panel



rear panel features

tape/line-input jack

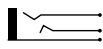
A +4dBu line-level signal, balanced or unbalanced, is brought in through this jack.


see—**tape-in**, front-panel description

insert point

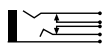
Separate 1/4" TRS jacks allow insertion of an external signal processor into the signal path of the GROUP.


insert send

 This ground-compensated output connects to the input of an external signal processor. The signal is derived after the group-summing amplifier.


Plugging a 1/4" plug into this jack does **not** break the internal signal flow of the Group. 

insert return

 This balanced input accepts a signal from the output of an external signal processor. It accepts either balanced or unbalanced signals.

Plugging a 1/4" plug into this jack **breaks** the signal flow of the Group. 

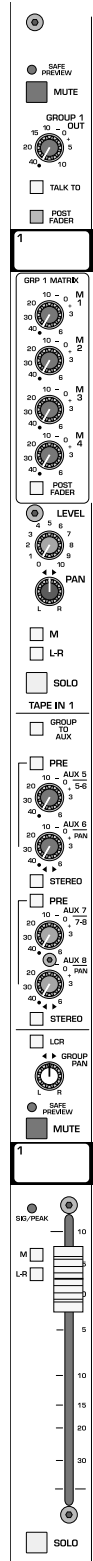
group output

 This balanced male XLR connector carries the GROUP output signal. This output is controlled by the GROUP output section. This signal is monitored on the group meter.

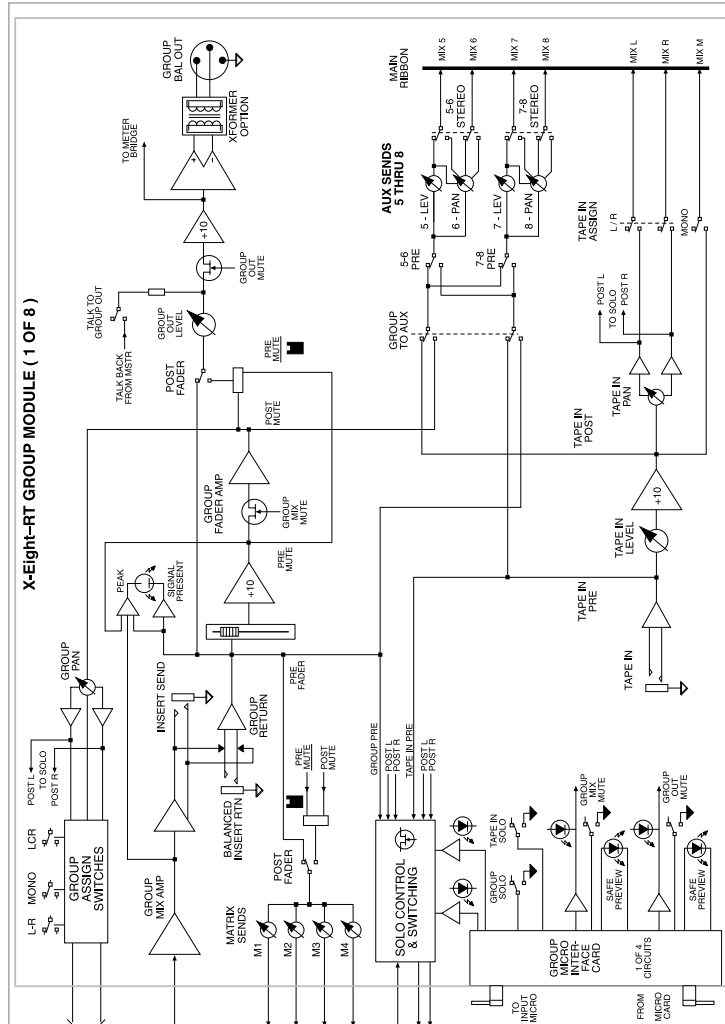
see—**group output**, front-panel description

4 group RT module

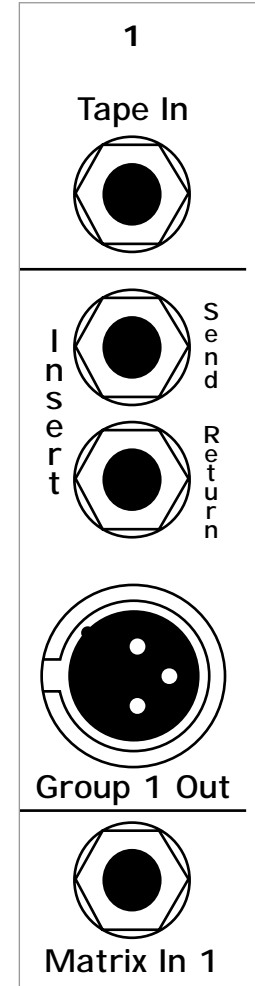
module



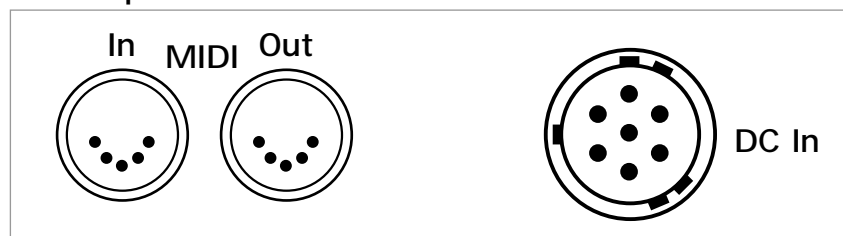
block diagram



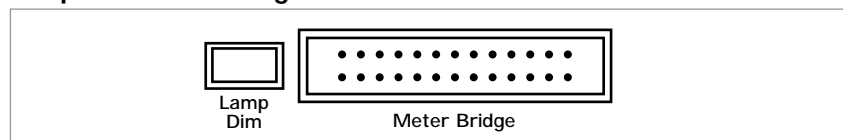
panel



MIDI/DC power detail



lamp dim/meterbridge connector detail



rear panel features

matrix in 1–4

located on the back of the GROUP 1–4 block

These 1/4"TRS jacks accept balanced or unbalanced +4dBu line level signals. They act as external inputs for MATRIX 1–4.

see—**master module**, MATRIX 1–4 front-panel description

midi in, midi out

located on the back of the GROUP 5–8 block

These jacks make it possible for the MICROPROCESSOR MUTE SYSTEM to be part of a MIDI system. Program changes and certain system-exclusive tasks can be carried out.

see—**microprocessor mute system**

midi in

Midi information is brought into the console and routed to the Microprocessor controlled mute system.

midi out


Midi information being sent out by the Microprocessor-controlled Mute system is available at this connector.

DC power-in

located on the back of the GROUP 5–8 block

This is where the powersupply cable gets connected to the console.

lamp dim

 goose-neck lamps light-up at full-intensity.

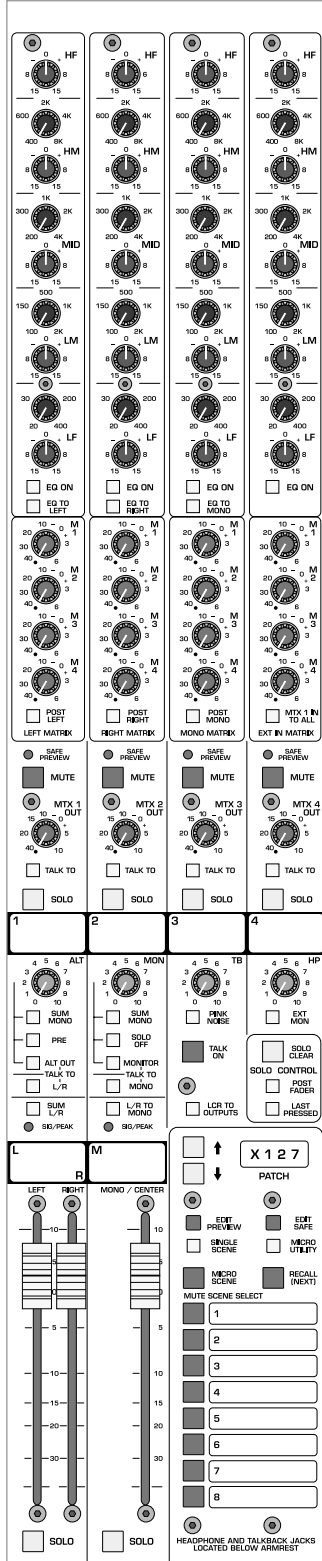
 goose-neck lamps light-up at medium-intensity.

meterbridge connector

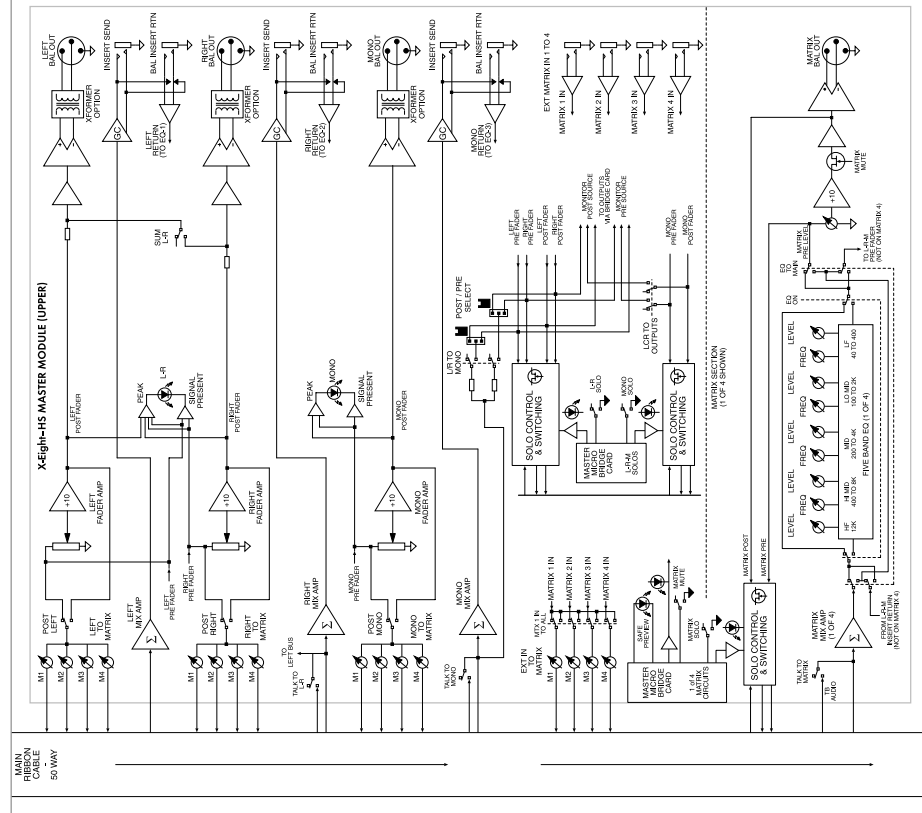
This connector carries all of the required connections up to the meter-bridge.

5 master HS module

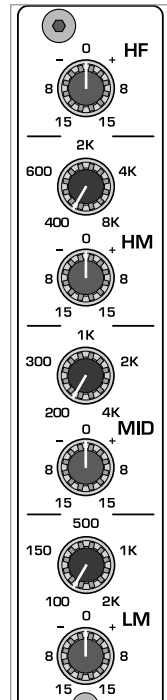
module



block diagram



panel



output EQ features


On the MASTER module block, the default sources for the four output eq's are the MATRIX 1–4 masters.

By using designated assignment switches, source for the first three output eq's can be switched over to the left, right and mono masters. The fourth eq is always fed by MATRIX 4 master.


All eq's feature five bands of equalization.


see—group HS module

high frequency—HF


 15 db boost/cut at 12kHz—shelving response.


high-mid frequency—HM

 15 db boost/cut.


 selectable frequency range of 400Hz to 8 kHz.
The response is bell-shaped with a fixed Q of 1.5.


mid frequency—MID

 15 db boost/cut.

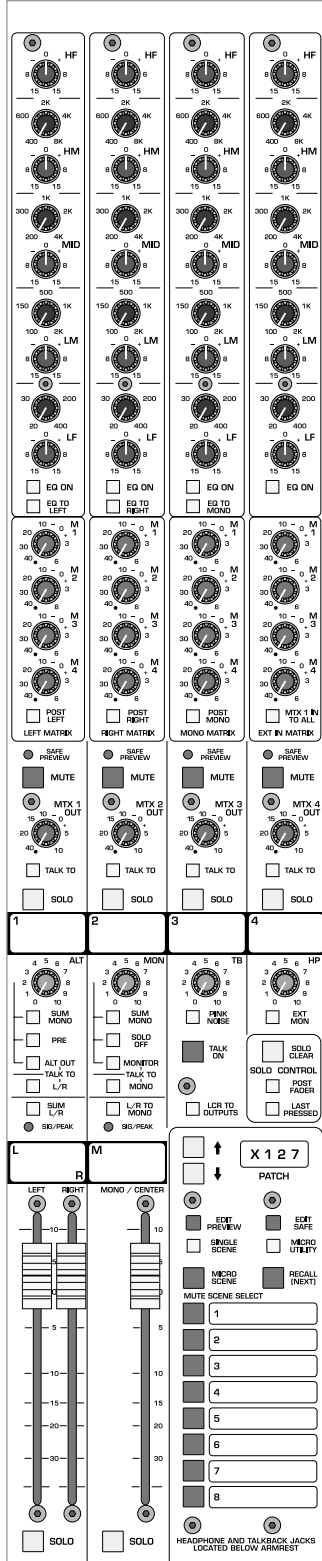
 selectable frequency range of 200Hz to 4 kHz.
The response is bell-shaped with a fixed Q of 1.5.

low-mid frequency—LM

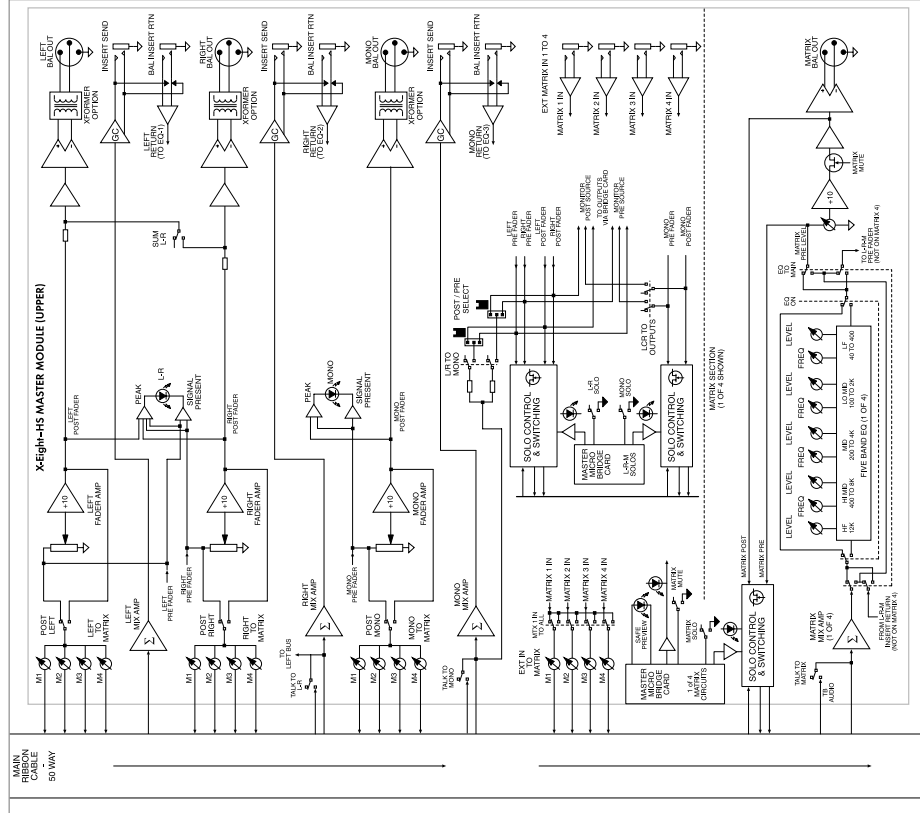
 15 dB boost/cut.

 selectable frequency range of 100Hz to 2 kHz.
The response is bell-shaped with a fixed Q of 1.5.

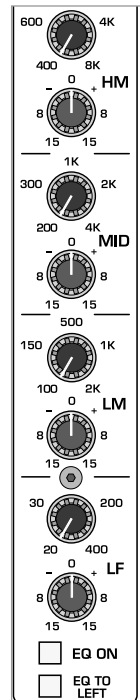
module



block diagram





panel



output EQ features

low frequency—LF


 Selectable frequency range of 20Hz to 400Hz.
The response is bell-shaped with a fixed Q of 1.5.


 15 dB boost/cut.


equalizer—EQ ON

Equalizer is **on**. This switch can be used to make A/B comparisons between flat and eq'd signals.

left, right, mono equalization—EQ TO LEFT, TO RIGHT, TO MONO

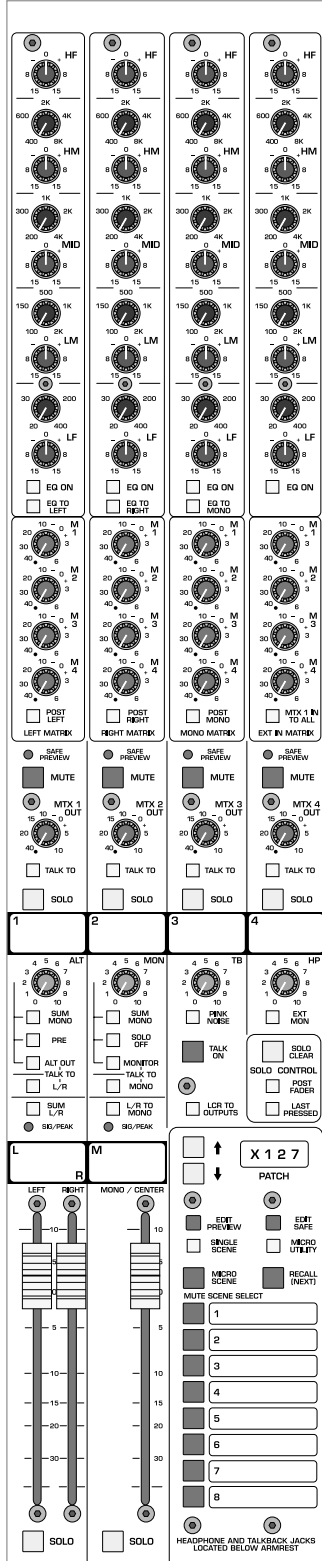
 These three switches select the signals fed to each of the first three eq's on the first three master sub-modules. The fourth MASTER sub-module does not include a switch because its source is always MATRIX 4.

 MATRIX 1-3 are fed to the first three eq's.

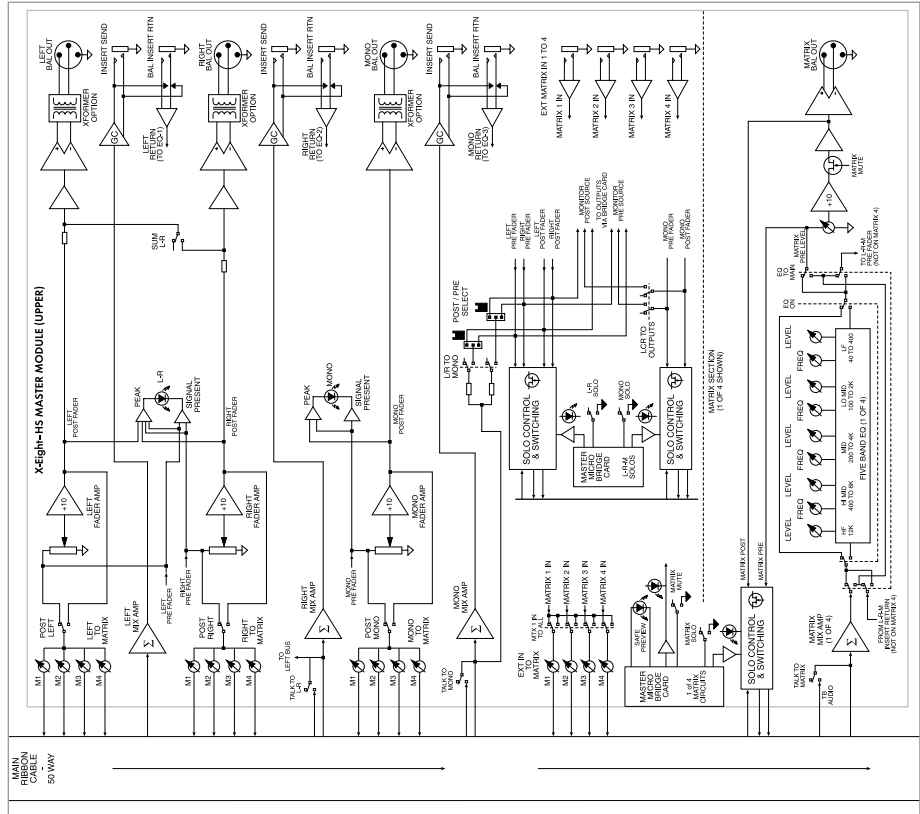
 left, right and/or mono are fed to the first three eq's.

5 master HS module

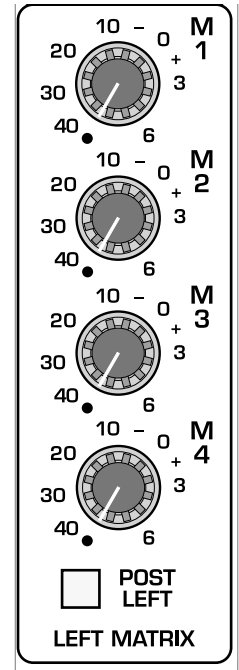
module



block diagram




panel



matrix features

The X-Eight HS includes four **MATRIX** mixes. Each of these outputs can be made up of signals from the eight **GROUPS**, left, right, mono and an external source.


left, right, and mono levels—MATRIX 1–4


 These level controls are used to mix the left, right, and mono signals into the corresponding **MATRIX**.

post-fader—left, right, and mono


These three post-fader switches determine whether the left, right and mono **MASTER** faders have any effect on signals that available to **MATRIX 1–4**.

post-left, post-right, post-mono


 The left, right and/or mono fader settings have no effect on the **LEFT**, **RIGHT**- and/or **MONO-TO-MATRIX 1–4** level controls.

 The left, right and/or mono faders are introduced into the signal paths. When the left, right and/or mono are muted, the corresponding **MATRIX 1–4** level controls are also muted.

external input levels—MATRIX 1–4

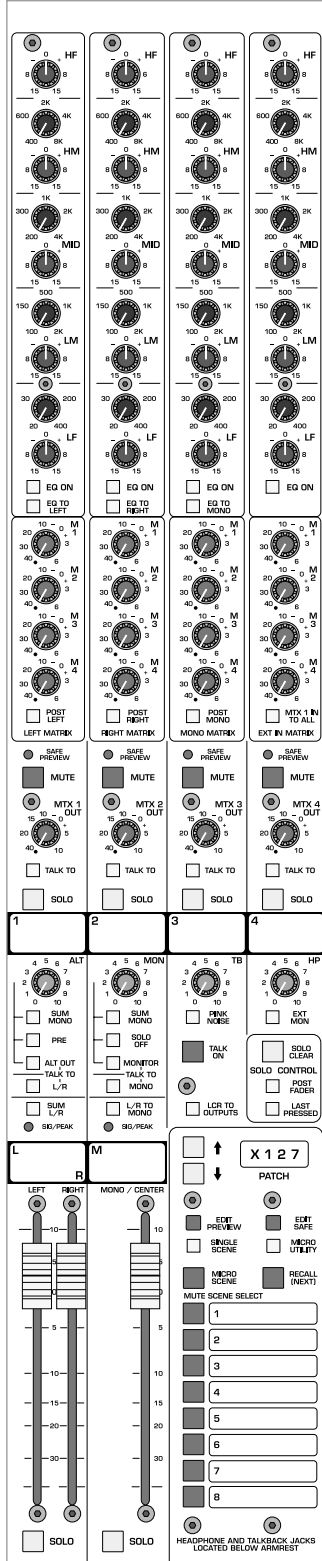
 These level controls are used to mix the external **MATRIX** input signals into the corresponding matrix. The external **MATRIX** input connectors are located on the rear-panel of the **MASTER** module.

external matrix routing—MTX 1 IN TO ALL

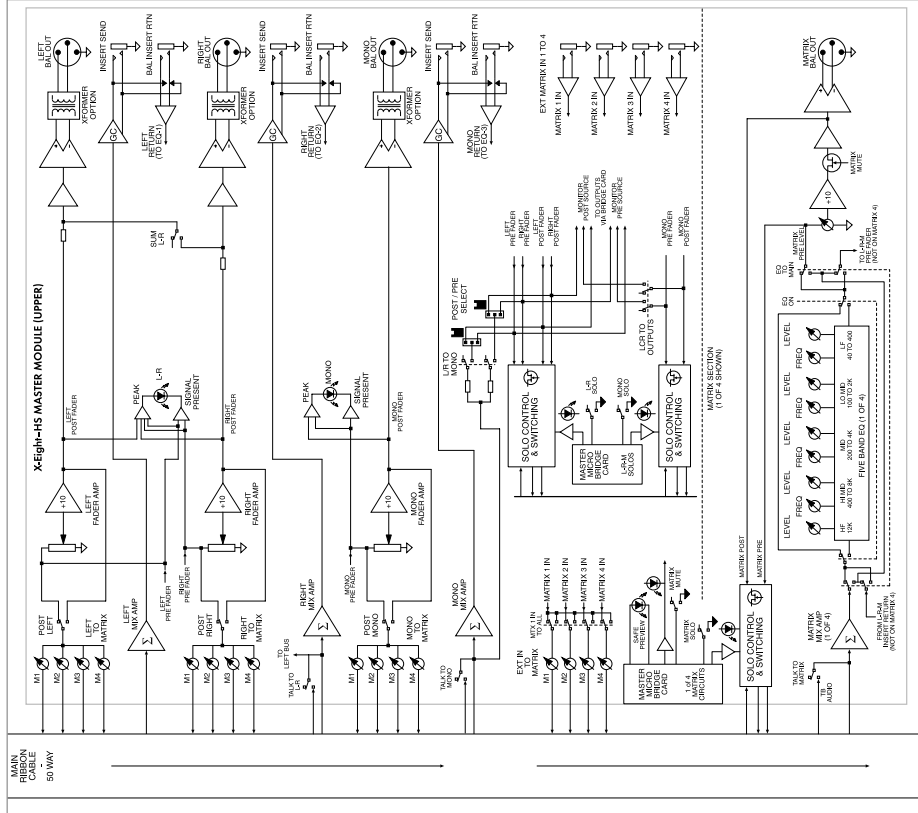
 This switch routes the signal from the external **MATRIX** input 1 jack to the external **MATRIX 1–4** input level controls. This way, a single external input can be added to each of the four matrices.

When this switch is **down**, the external **MATRIX** input jacks 2, 3 and 4 are disabled.

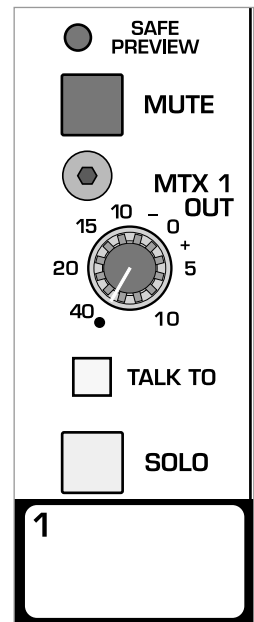
module



block diagram



panel



matrix output features


safe preview LED

see—**mono input module**


mute

see—**mono input module**


master output levels—MTX 1-4

 These are the MASTER output level controls for the MATRIX section. They control the levels that appear at the corresponding MATRIX output connectors on the rear-panel.

matrix 1-4 talkback—TALK TO

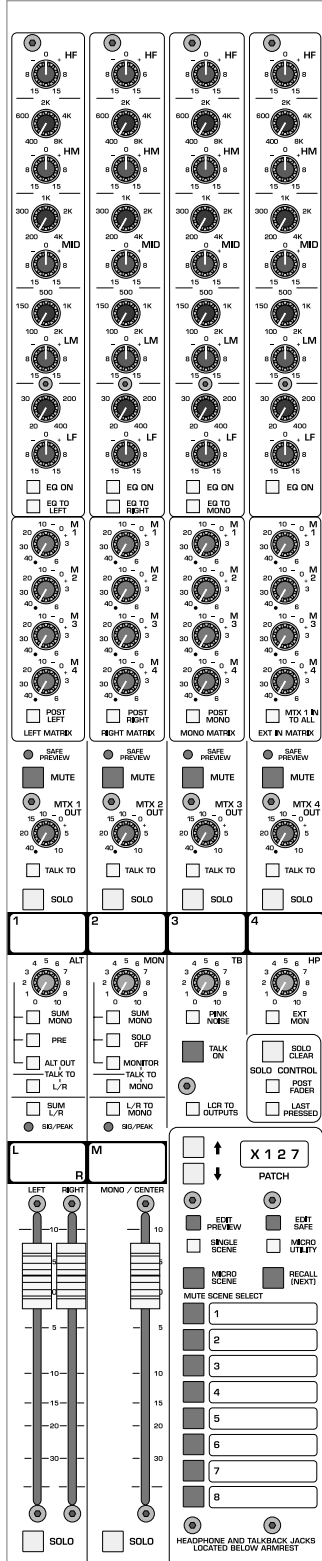
 This switch adds the TALKBACK system output to the MATRIX outputs. The level of the TALKBACK signal is set by the TALKBACK level control in the MASTER section.

solo

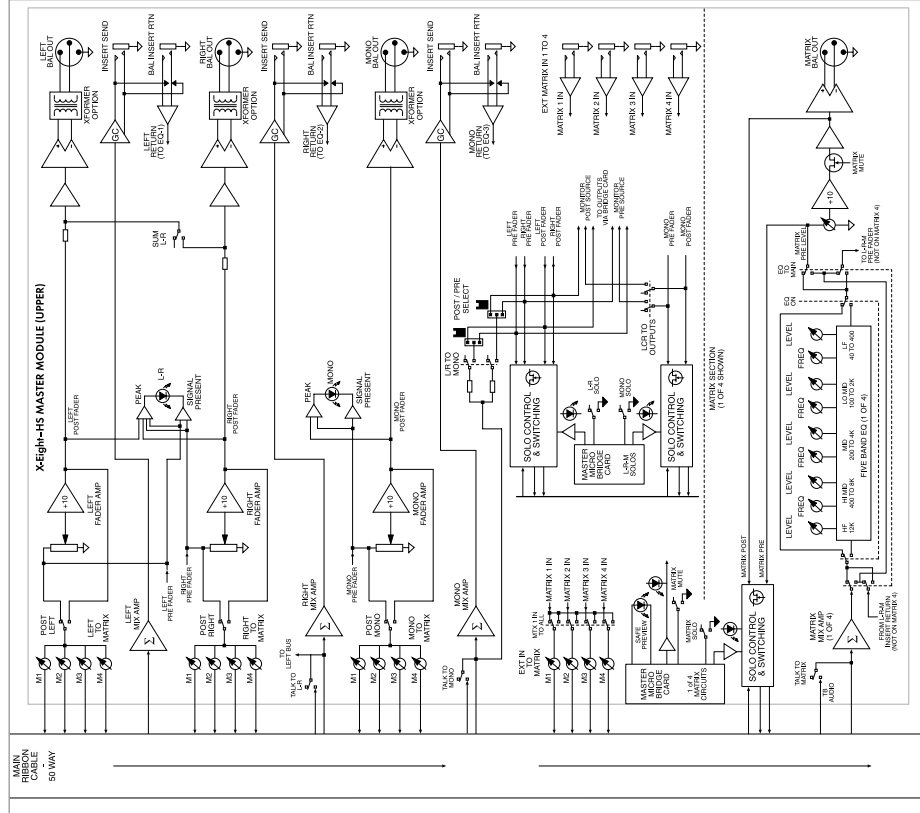
 Pressing this switch will include (illuminated) or exclude (not illuminated) MATRIX from the console's SOLO system.

see—**master module**, solo control system

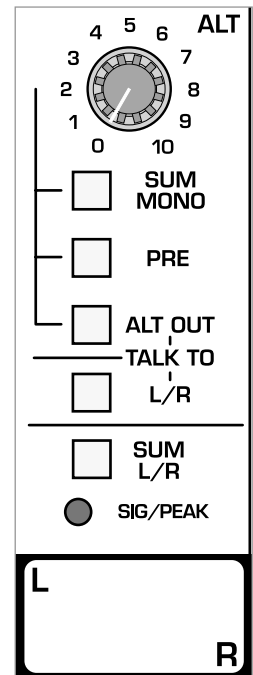
module



block diagram



panel




alternate out features


The ALTERNATE output section allows assignment of the left and right MASTER signals (plus center—if LCR-TO-OUTPUTS is selected) to a separate pair of balanced male XLR connectors on the rear-panel.


By utilizing the mode switches located below the ALT OUT level control, these signals can be derived in a number of ways. In default mode (no switches depressed), the post-fader left and right MASTER (in center) signals are routed through the ALT OUT level control and appear at the ALT OUT connectors.

alternate out level


 This control sets the levels that appear at the ALT OUT left and right balanced XLR connectors on the rear-panel.


sum mono

 The main left and right (and mono/center) signals are summed together as a mono signal. This signal is then routed through the ALT OUT level control and appears at the left and right ALT OUT balanced male XLR connectors on the rear-panel.

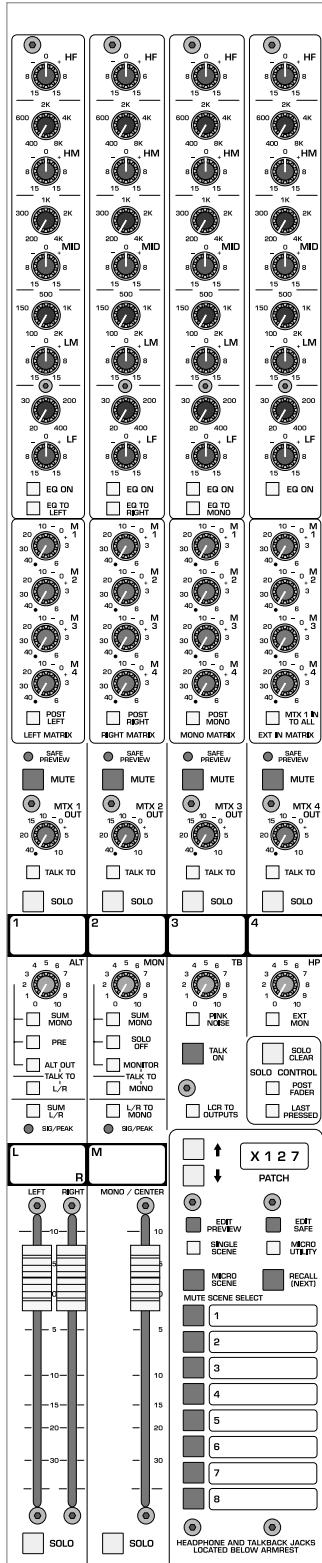
 The main left and right (and mono/center) signals are routed in stereo through the ALT OUT Level control and appear at the left and right ALT OUT balanced male XLR connectors on the rear-panel.

pre switch

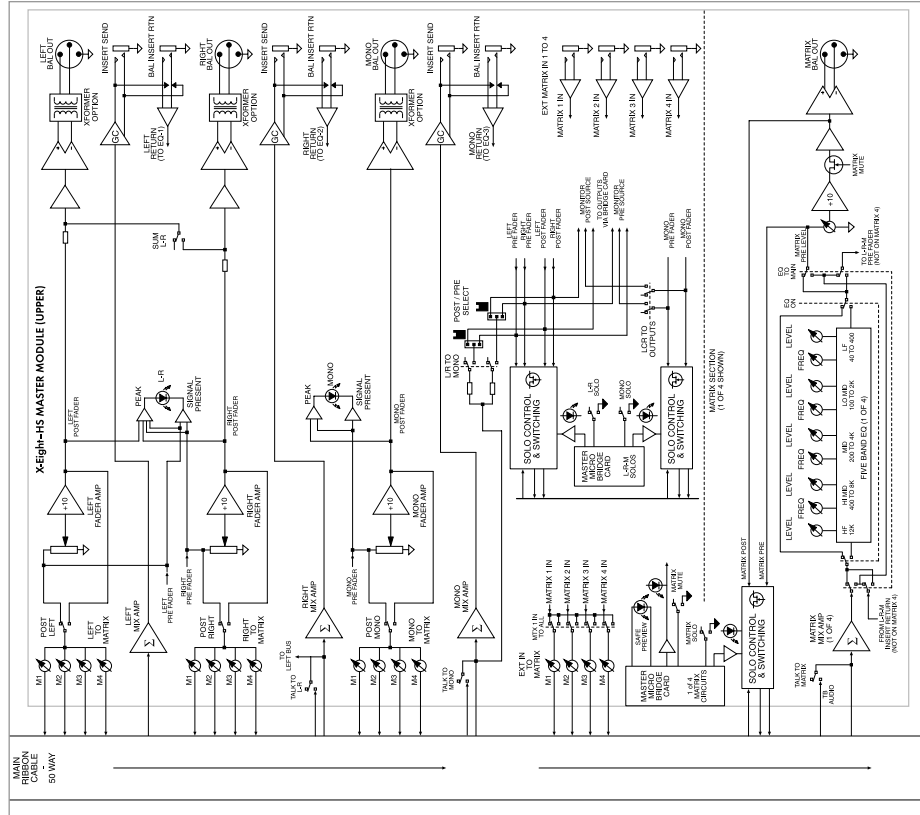
 The left and right (and mono/center) master faders have no effect on the left and right (and mono/center) signals routed through the ALT OUT level control and appear at the left and right ALT OUT balanced male XLR connectors on the rear-panel.

 The left and right (and mono/center) master faders control the levels of the left and right (and mono/center) signals routed through the ALT OUT level control and appear at the left and right ALT OUT balanced male XLR connectors on the rear-panel.

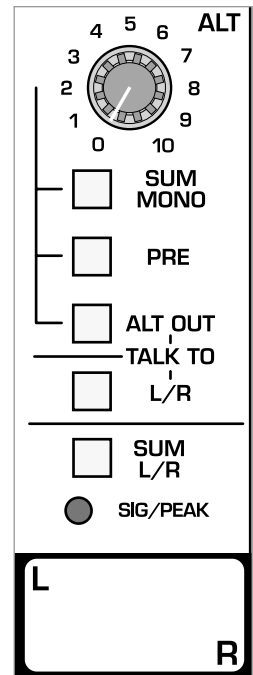
module



block diagram



panel



alternate out features

talkback alternate—TALK TO ALT OUT

The TALKBACK system output is added to the left and right ALT outputs. The level of the TALKBACK signal is set by the TALKBACK level control in the MASTER section.

talkback left/right—TALK TO L/R

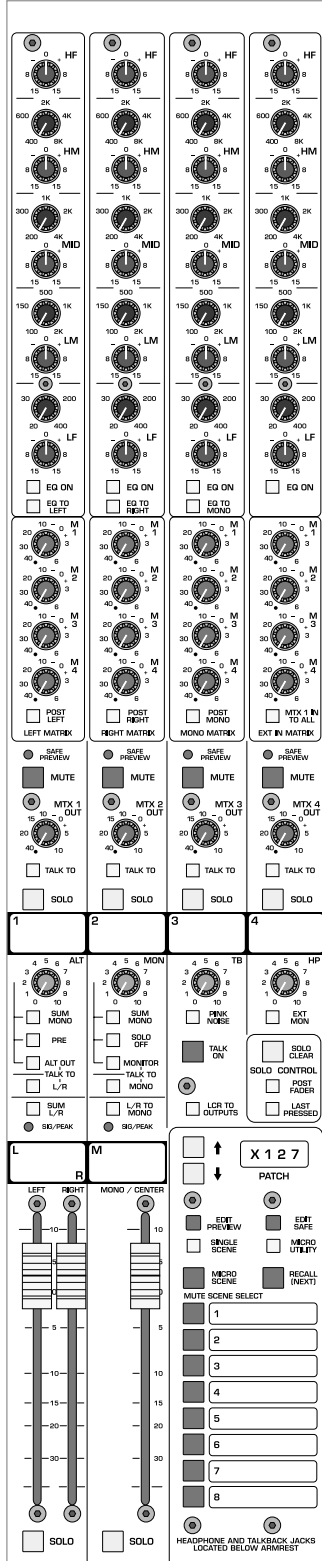
The TALKBACK system output is added to the left and right MASTER outputs. The level of the TALKBACK signal is set by the TALKBACK level control in the MASTER section.

sum left/right—SUM L/R

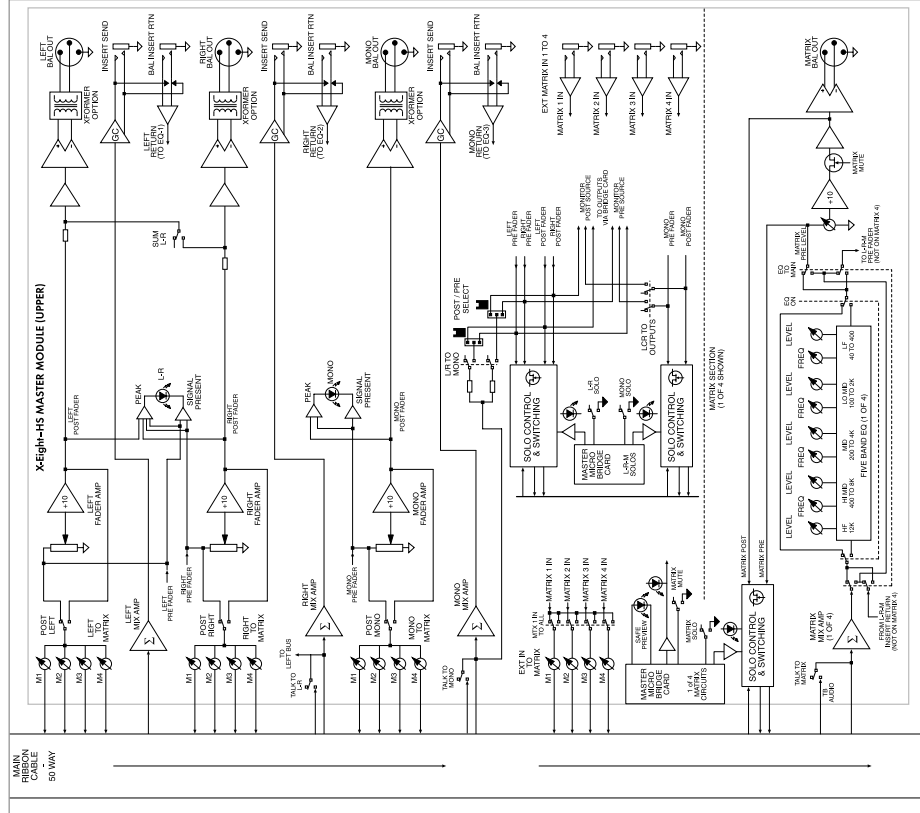
The main left and right signals are summed together as a mono signal and appear at the left- and right-output balanced male XLR connectors on the rear-panel.

The Main Left and Right signals appear in stereo at the left- and right-output balanced male XLR connectors on the rear-panel.

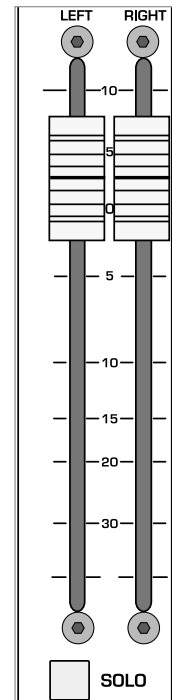
module



block diagram



panel




left and right level features


left and right master faders

These faders govern the main left and right output levels.

signal/peak LED—SIG/PEAK

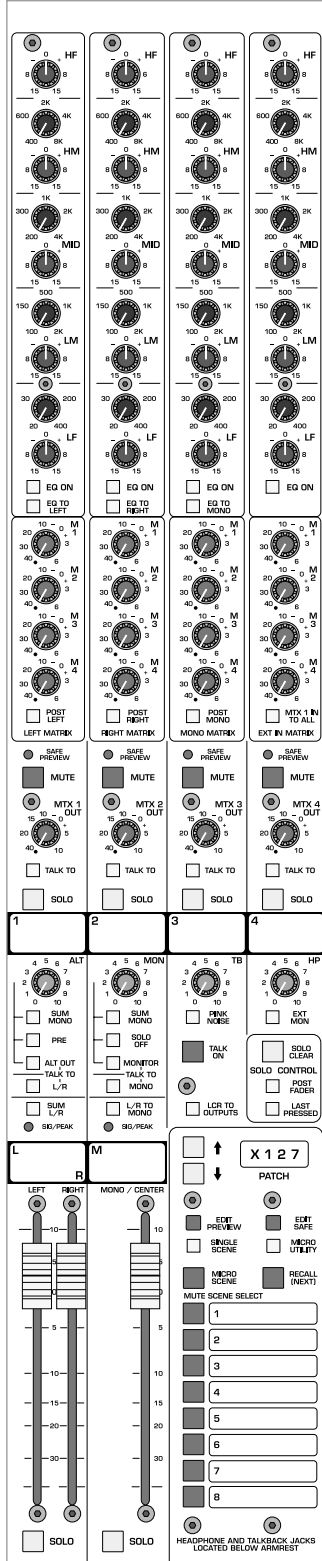
 This dual-color LED responds to the combined pre-fader stereo signal. It illuminates green with varying brightness in proportion to the audio signal. When the signal approaches clipping, either pre or post fader, the LED illuminates red.

solo

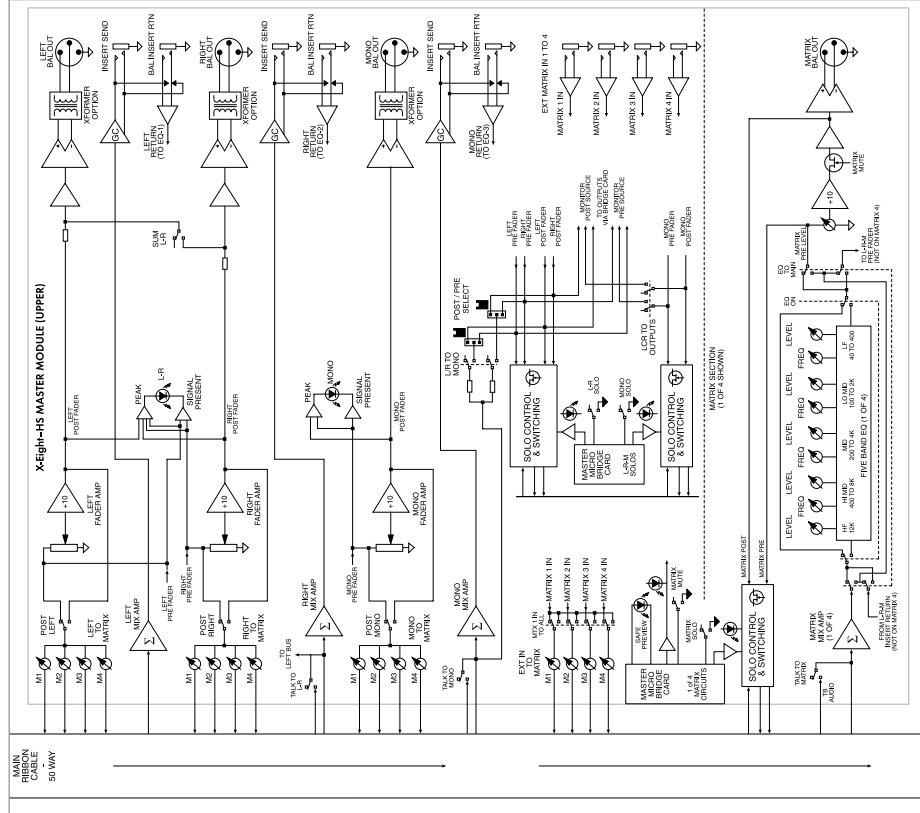
 Pressing this switch will include (illuminated) or exclude (not illuminated) the left and right signals from the console's SOLO system. The signals are monitored in stereo.

see—**master module**, solo control system

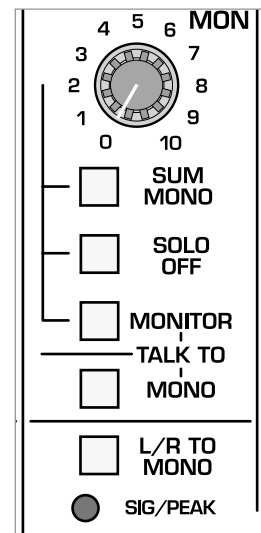
module



block diagram



panel



monitor output features

The MONITOR output section controls the audio feed for the console operator. Features are similar to those of ALT OUT section, except that the MONITOR section is normally used to access the SOLO system as well as main outputs.

Like the alternate output section, it provides the ability to assign the left and right MASTER signals to a designated pair of balanced male XLR connectors on the rear-panel.

By utilizing the mode switches located below the LOCAL MONITOR OUTPUT level control, these signals can be derived in a number of different ways. In default mode (no switches depressed), the post-fader left and right MASTER signals are routed through LOCAL MONITOR level control and appear at the MONITOR OUT balanced male XLR connectors on the rear-panel.

This feed is replaced by the SOLO signal when a SOLO is activated on the console.

monitor-out level

see—alternate out

sum mono

see—alternate out

solo-off

When any of the SOLO switches on the console are active, the SOLO audio is routed in stereo through the MONITOR OUT level control and appears at the left and right MONITOR OUT balanced male XLR connector on the rear-panel.

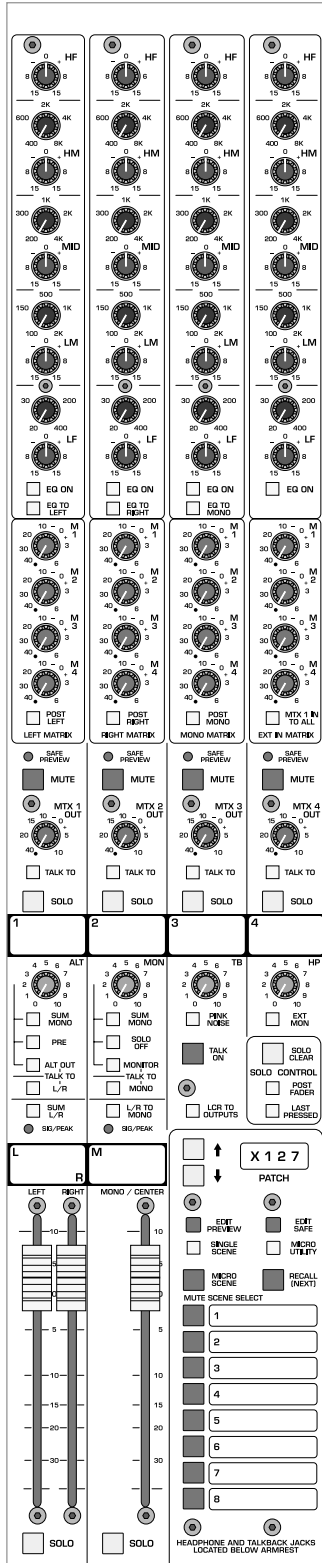
This setting overrides the left and right feed to the MONITOR output.

When any of the SOLO switches on the console are active, the MONITOR outputs are not affected.

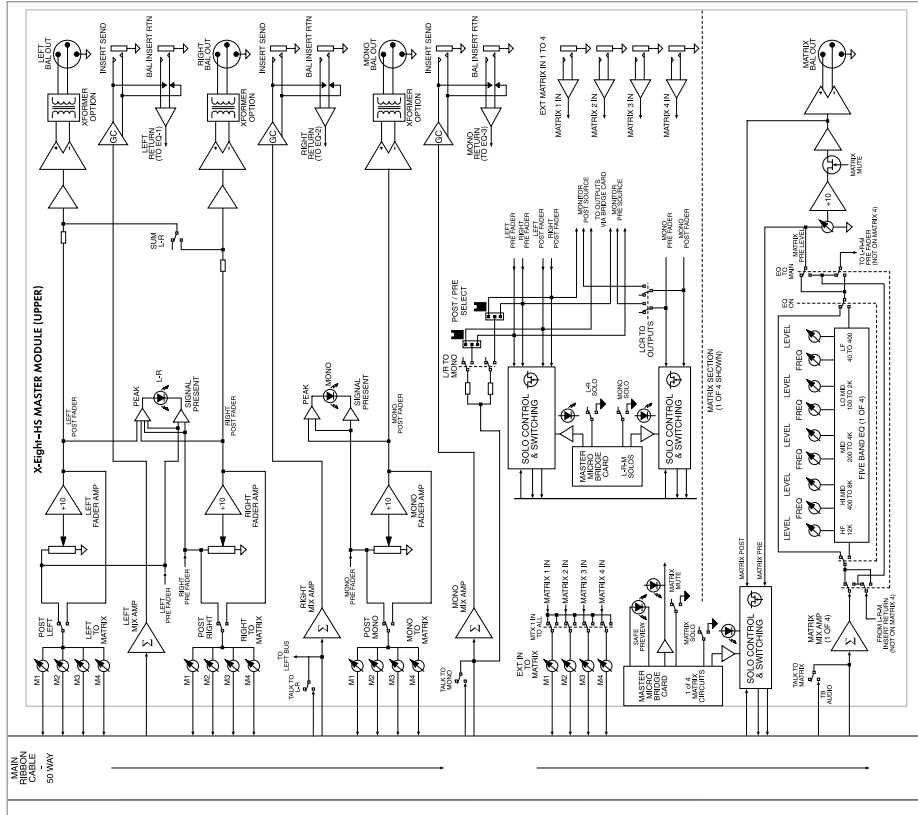
monitor talkback—TALK TO MONITOR OUT

The TALKBACK system output is added to the left and right MONITOR outputs. The level of the TALKBACK signal is set by the TALKBACK level control in the MASTER section.

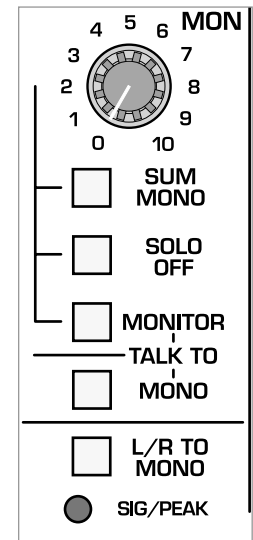
module



block diagram




panel





local monitor output features

talkback mono—TALK TO MONO


 The TALKBACK system output is added to the mono MASTER output. The level of the TALKBACK signal is set by the TALKBACK level control in the MASTER section.

main left/right to mono—L/R TO MONO

 The MAIN left and right post-fader signals are summed together as a mono signal and are routed to the mono bus. The summed left and right signals automatically combine with any signals that are assigned directly to the mono bus to make up the mono output.

 The mono output consists exclusively of signals assigned directly to the mono bus. Signals that appear at the MAIN left and right faders do not appear at the mono output.

signal/peak LED—SIG/PEAK

 This dual-color LED responds to the pre-fader mono signal. It illuminates green with varying brightness in proportion to the audio signal. When the signal approaches clipping, either pre or post fader, the LED illuminates red.

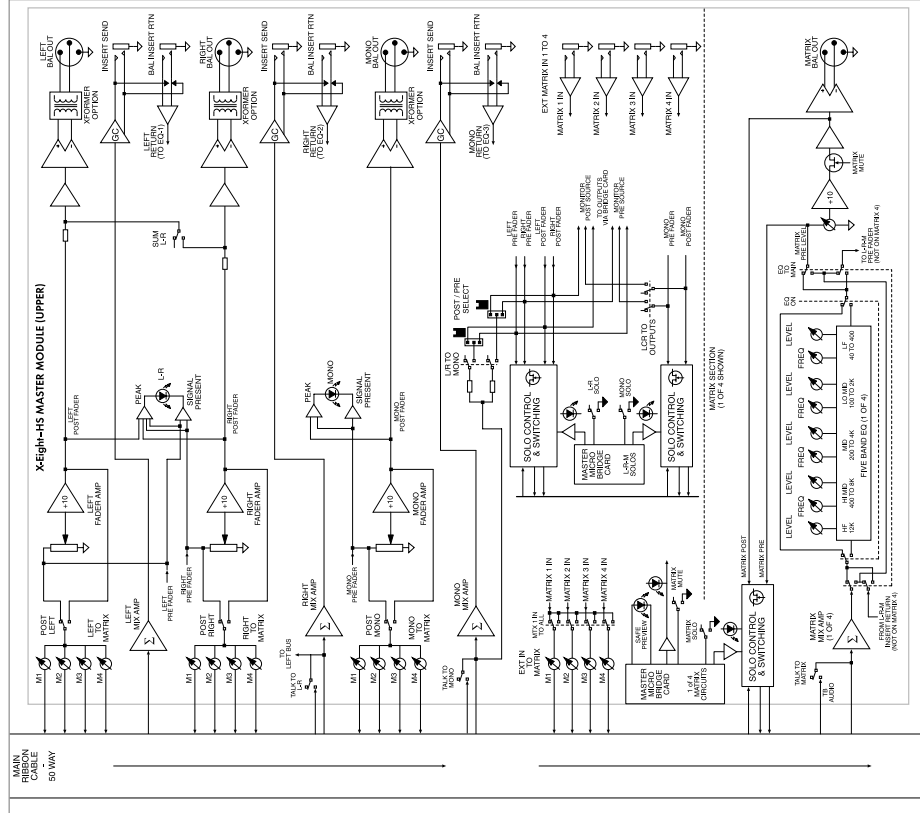
module

The front panel features four columns of controls, each corresponding to a matrix (1-4). Each column includes:

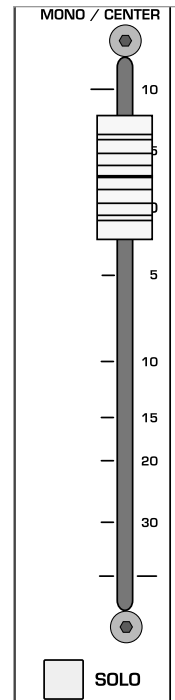
- HF (High Frequency) knob (0-15)
- HM (High Mid) knob (0-15)
- MID knob (0-15)
- LM (Low Mid) knob (0-15)
- LF (Low Frequency) knob (0-15)
- EQ ON / EQ TO LEFT / EQ TO RIGHT buttons
- M 1-4 meters (0-10)
- POST LEFT / POST RIGHT / POST MONO buttons
- LEFT MATRIX / RIGHT MATRIX / MONO MATRIX / EXT IN MATRIX buttons
- SAFE PREVIEW / MUTE buttons
- MTX 1-4 OUT meters (0-10)
- TALK TO / SOLO buttons

At the bottom, there are four scene selector knobs (ALT, MON, TB, HP) and a large vertical slider for MONO / CENTER with a SOLO button at the bottom.

block diagram



panel




mono master level features

mono master fader

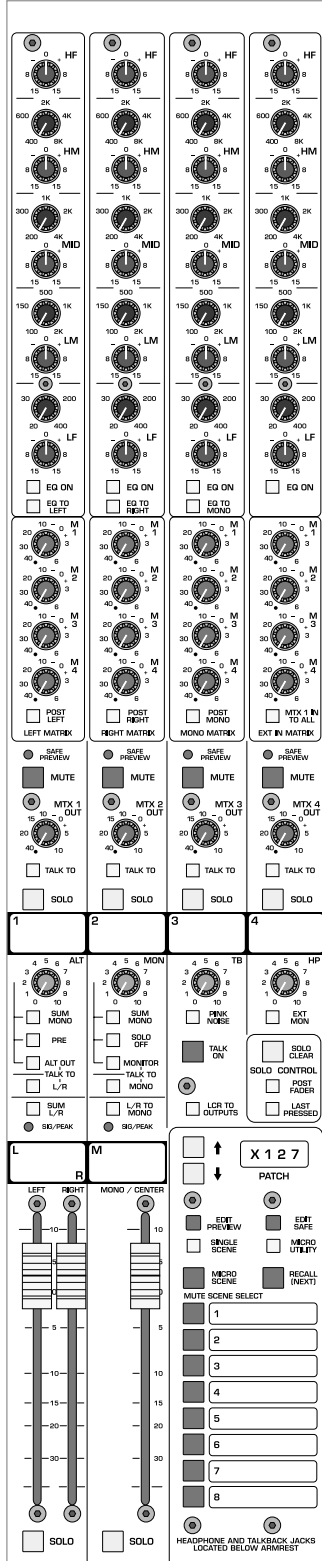
This fader governs the mono output level.

solo

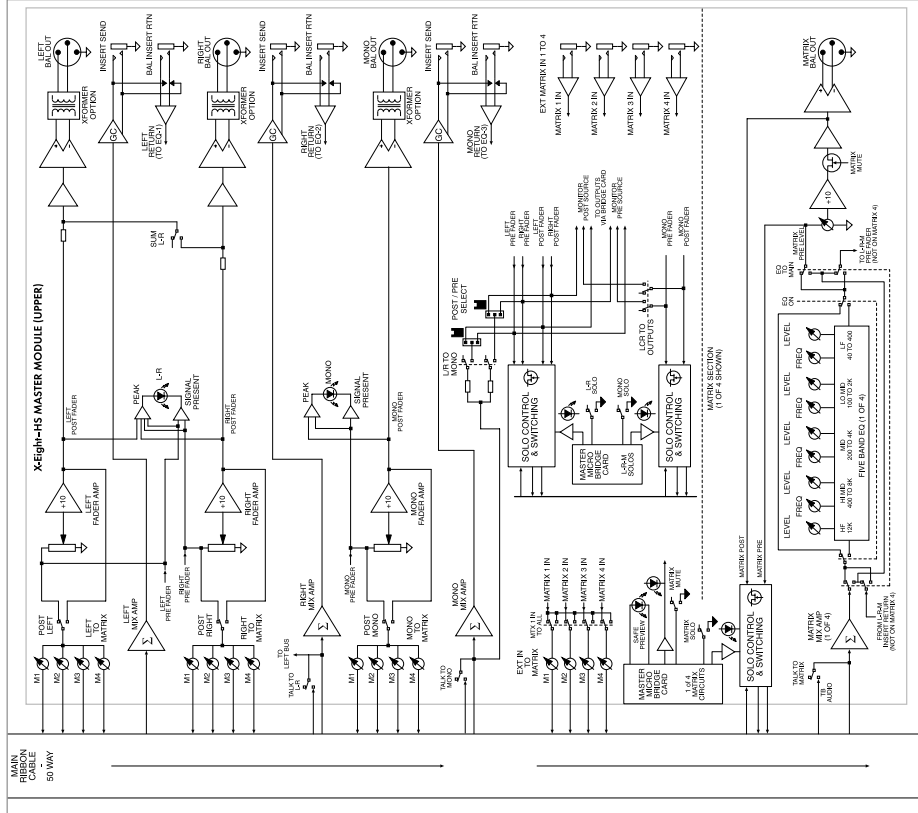
 Pressing this switch will include or exclude the mono signal from the console's SOLO system.

see—**master module**, solo control system

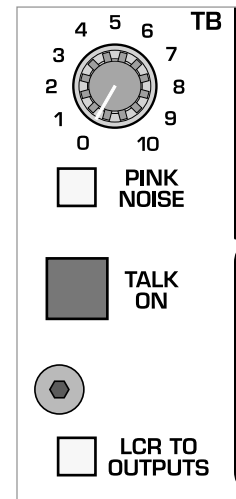
module



block diagram



panel




talkback features

The TALKBACK system provides facilities for assigning an external signal (usually the console operator's microphone) to any of the console's outputs. Other signals can be routed through the TALKBACK system including an external tone oscillator or the built in PINK NOISE generator.

talkback level

 This control sets the level that appears at any of the outputs with their respective TALK TO switches engaged. It also governs the audio level at the TALKBACK output on the rear panel.

pink noise

 The TALKBACK in-connector is disabled and PINK NOISE is sent through the TALKBACK system.


talkback on—TALK ON


This switch must be activated for the TALKBACK system to operate. There are two-ways to activate it:

- 1 Momentary - Depressing the button for more-than 1/2 of a second will cause it to act as a momentary switch. When the button is released, the TALKBACK section will be shut-off.
- 2 On / Off - A quick tap on the button (less-than 1/2 second) will cause the switch to electronically change its state from on-to-off or from off-to-on.

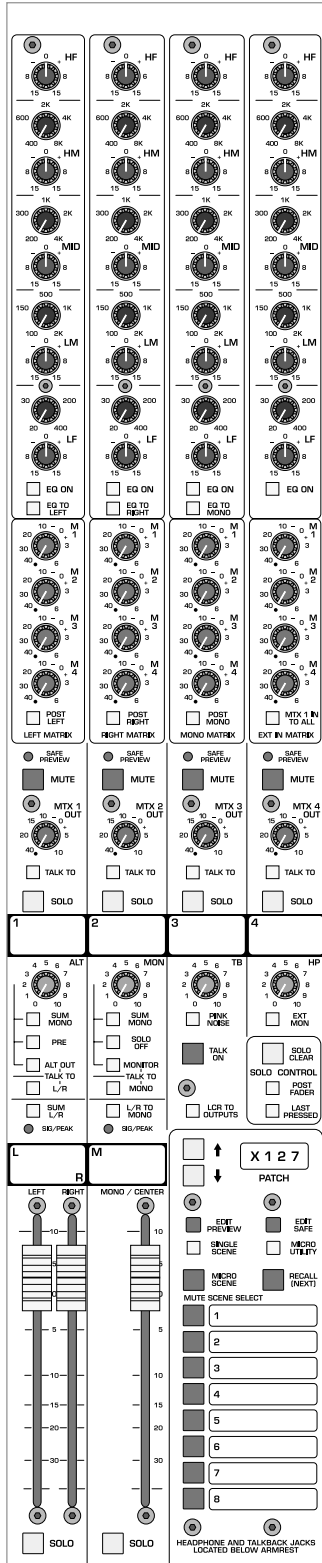
left/right/center—LCR TO OUTPUTS

This feature is useful for monitoring the console when creating an LCR mix. Local monitoring is usually done with two speakers. The LCR to outputs feature combines the center (or mono) signal with the left and right signals, creating a *phantom* center channel. This feature affects the ALT OUT section, the MONITOR OUT section, the HEARING ASSIST output and the head-phone feed.

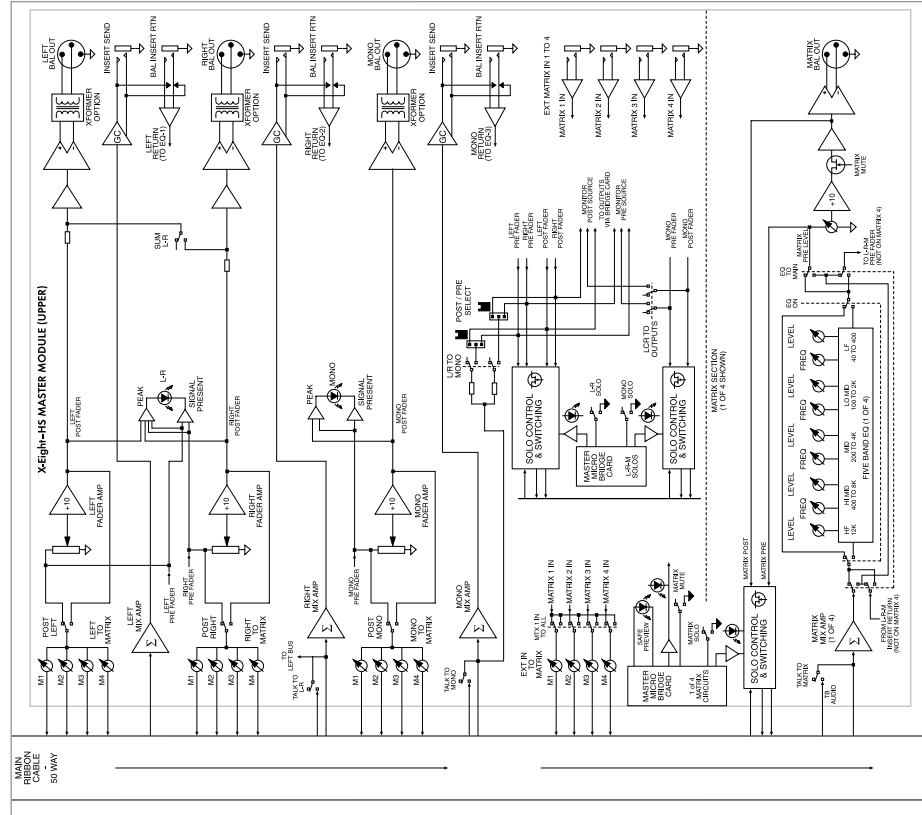
 Center (mono) channel is not included in the MONITOR paths.

 The center (or mono) channel is combined with left and right MONITOR outputs. This makes it possible to hear the center channel without a designated speaker.

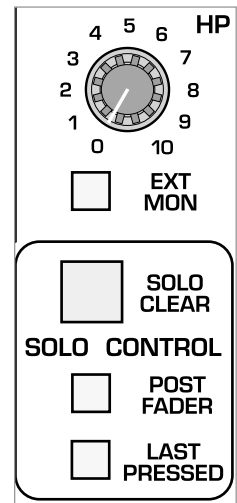
module



block diagram




panel



solo control features

headphone level


 This control governs the level at the headphone jack located in the front of the console under the arm rest.


solo clear

When this switch is lit, it indicates that at least one SOLO on the console is active. Depressing this switch will clear any active SOLOS and this light will go out.

post-fader


This switch determines whether the SOLO system sources will be pre or post level control. It affects all inputs and outputs globally throughout the console.

 The audio from active solos is derived after the corresponding fader or MASTER level control. This is also referred to as AFL—after-fader listen.


 The audio from active solos is derived before the corresponding fader or master level control. This is also referred to as PFL—pre-fader listen.

last pressed

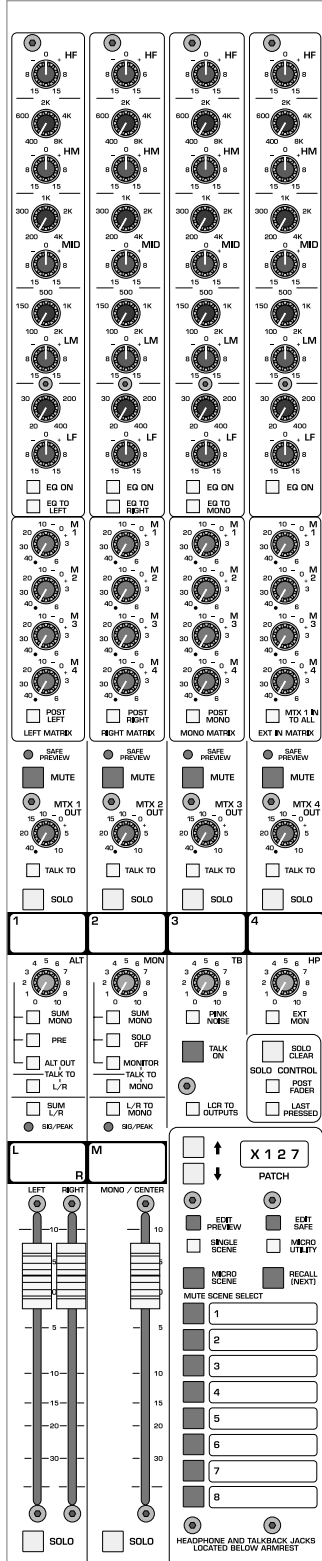
The SOLO system can operate in two different modes, as described below. In either mode, a solo can be activated by pressing the desired local SOLO button. The button will light up to indicate that the SOLO is active, and pressing an active SOLO button will make it inactive and the button's light will go out.

 Any number of solos can be active at once. There are two-ways to make active solos inactive.

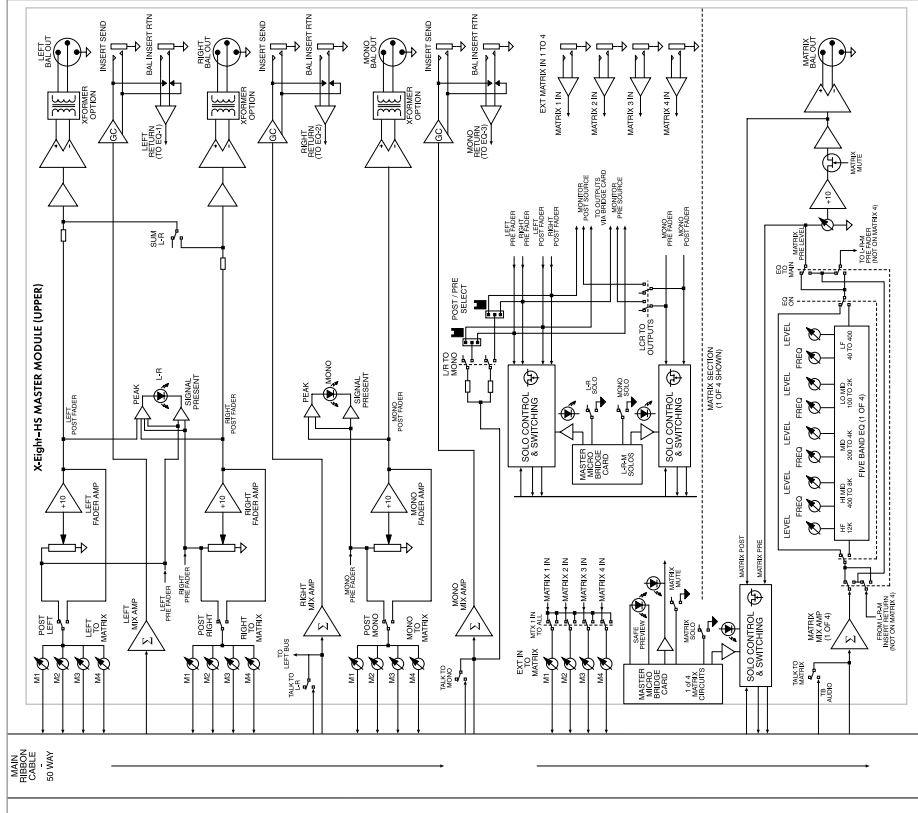
- 1 Press an active SOLO button (one that is lit) and it will be made inactive.
- 2 Press the SOLO CLEAR button.

 Only one solo can be active at a time. Pressing on an inactive SOLO button will activate that solo and make a previous solo inactive.

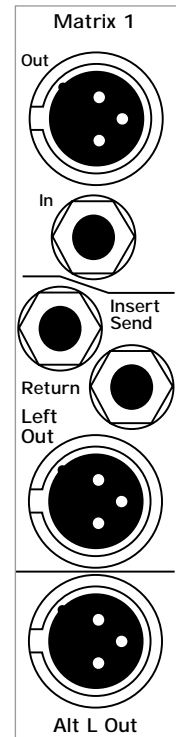
module



block diagram



panel



rear panel features

left and right alternate output XLR's



This pair of balanced male XLR connectors carries the left and right ALT OUT signals. These outputs are controlled by the ALT OUT level control.

see—**left and right alternate output**, front-panel description

XLR output jack on monitor

This pair of ground compensated 1/4" TRS jacks carries the left and right MONITOR signals. These outputs are controlled by the MONITOR level control.

see—**monitor**, front-panel description

matrix 1–8 output XLR's



This group of four balanced male-XLR connectors carries the MATRIX 1–8 output signals. These outputs are controlled by their respective MATRIX OUTPUT level controls.

see—**matrix**, front-panel description

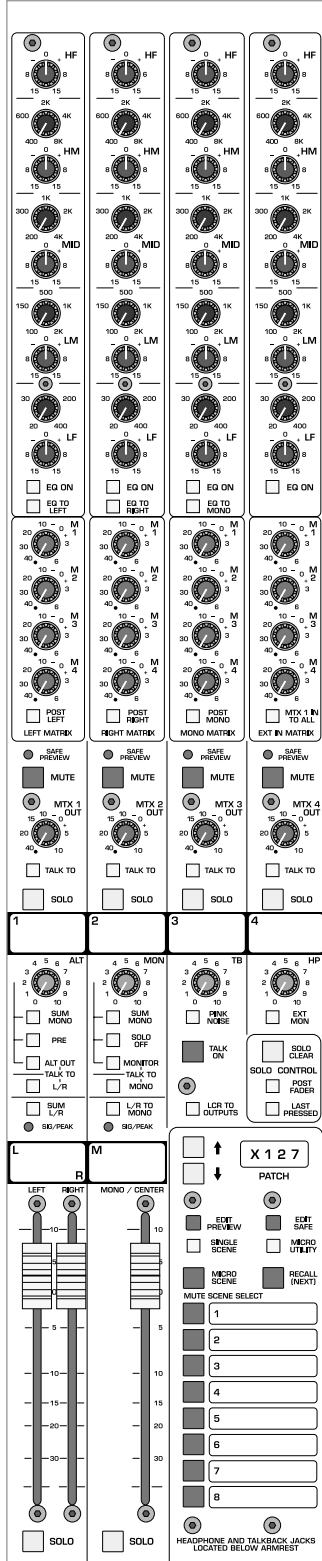
left, right and mono output XLR's



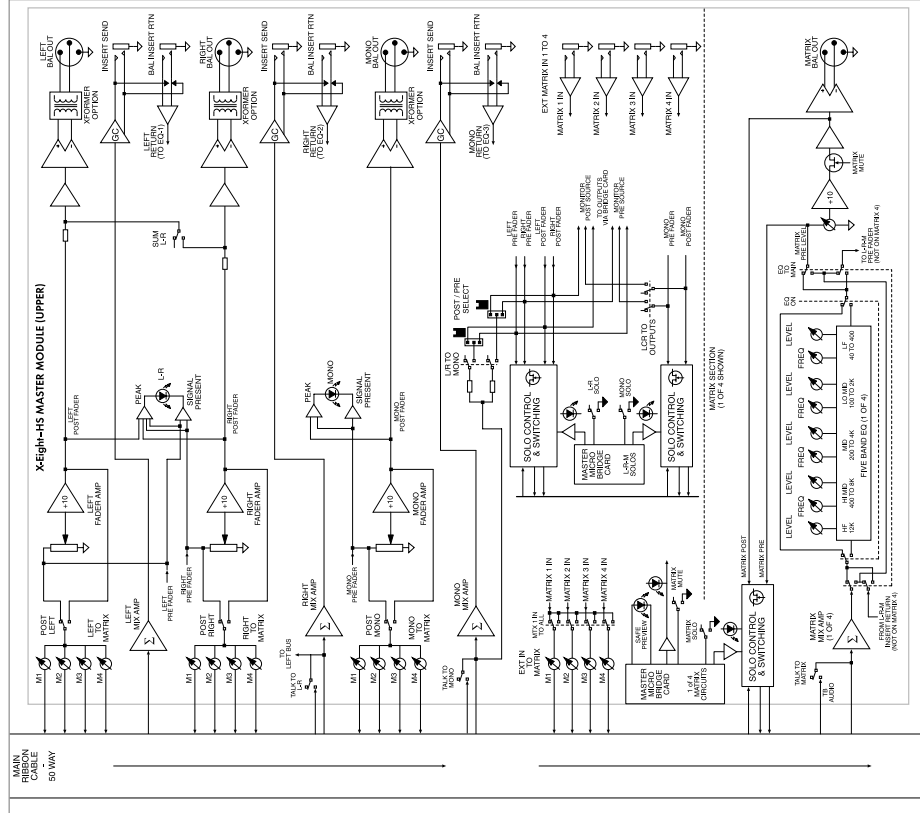
This group of three balanced male-XLR connectors carries the left, right and mono output signals. These outputs are controlled by the left, right and mono output faders.

see—**left, right, and mono masters**, front-panel description

module



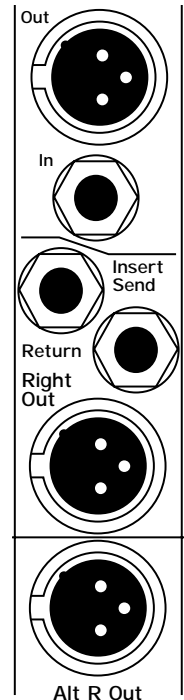
block diagram



MIDI/DC power detail



panel





rear panel features

insert points—left, right, and mono


Separate 1/4" TRS jacks provide the ability to insert external signal processor into the signal paths of the left, right and mono MASTERS.


insert sends—left, right, and mono

 These jacks connect to the input of signal processors. The signals are ground compensated.

Plugging a 1/4" plug into this jack does **not** break the internal signal flow of the respective left, right, and mono masters. 

insert returns—left, right, and mono

 These jacks connect to the outputs of a signal processors. They can accept balanced or unbalanced signals.

Plugging a 1/4" plug into this jack **breaks** the signal flow of the respective left, right, and mono masters. 

Midi In, Midi Out

These jacks allow the MICROPROCESSOR MUTE SYSTEM to be linked into a MIDI system. Program changes and certain system-exclusive tasks can be carried out.

see—**microprocessor mute system**

midi-in

MIDI information is brought into the console and routed to the MICROPROCESSOR MUTE SYSTEM.

midi-out

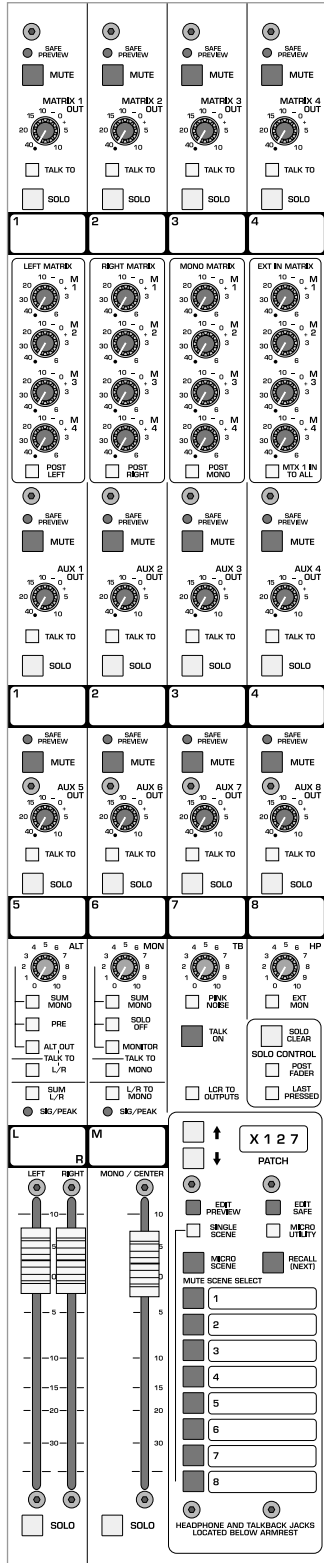
MIDI information sent out by the MICROPROCESSOR MUTE SYSTEM is available at this connector.

DC power-in

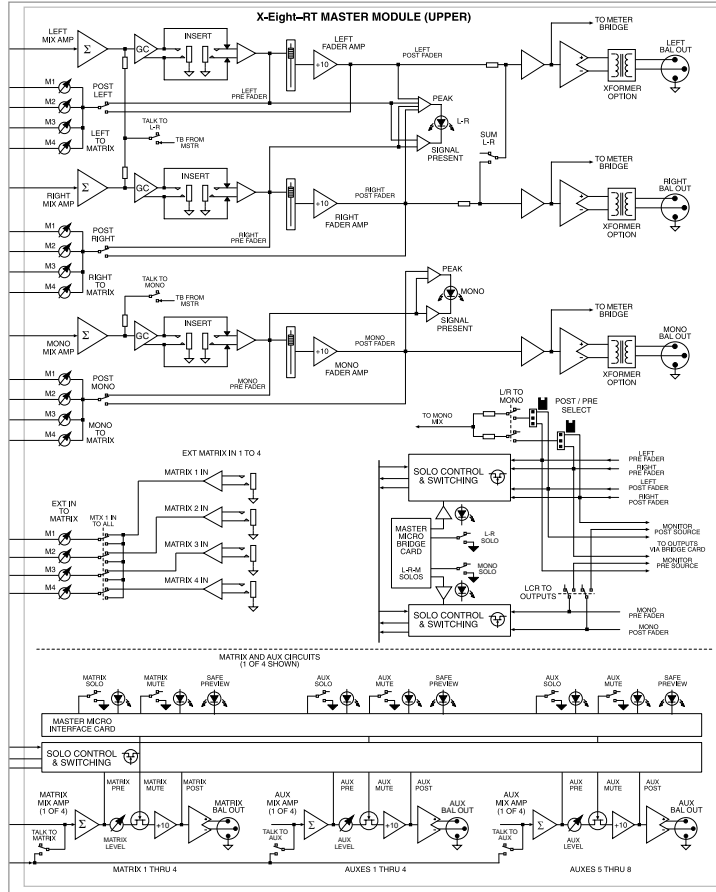
This jack connects the power supply cable to the console.

6 master RT module

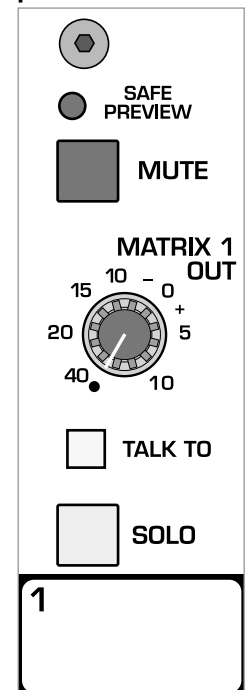
module



block diagram



panel



matrix master output features

This section includes the standard output features for MATRIX 1–4.


safe preview LED

see—mono input module


mute

see—mono input module


matrix output levels—MTX 1–4

 These are the MASTER output level controls for the MATRIX section. They control the levels for the corresponding MATRIX output connectors on the rear-panel of the GROUP 5–8 module block.

matrix talkback—TALK TO

 This switch connects the TALKBACK system output to the MATRIX outputs. The level of the TALKBACK signal is set by the TALKBACK level control in the MASTER section.

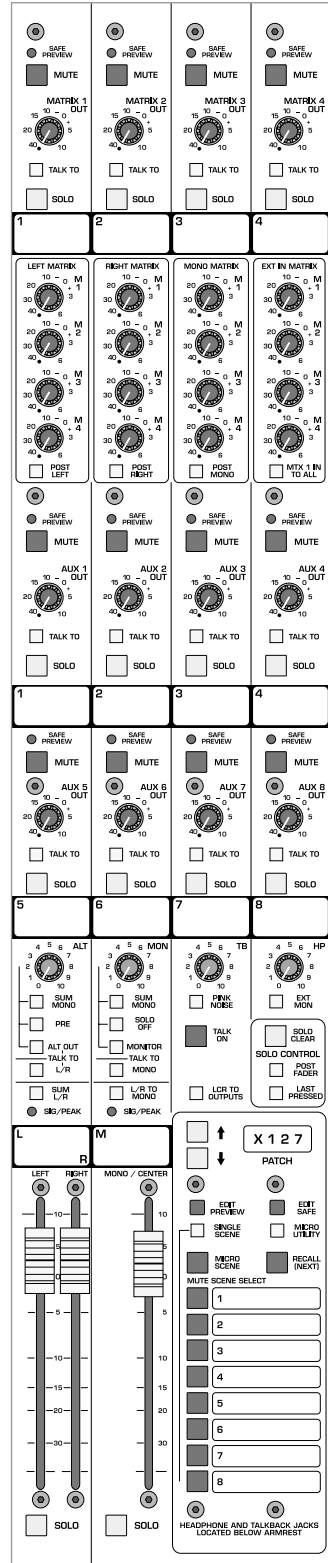
solo

 Pressing this switch will include or exclude the MATRIX from the console's SOLO system.

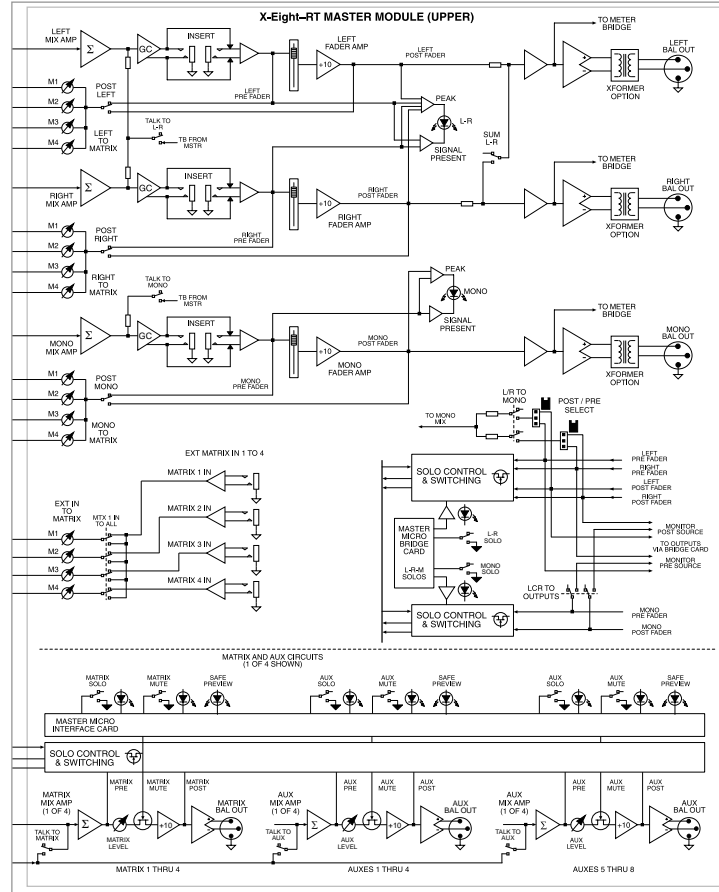
see—master module, solo control system

6 master RT module

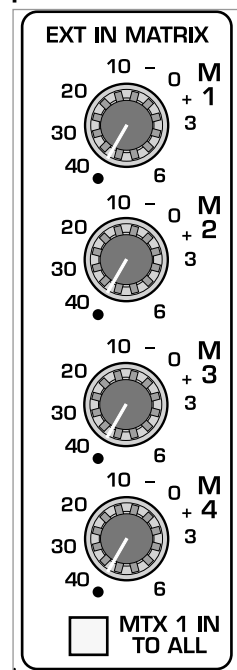
module



block diagram




panel




matrix level control features


matrix 1–4 levels—left, right, and mono

 These level controls mix the left, right and mono signals into the corresponding matrix.

external matrix 1–4 input levels controls

 These level controls are used to mix the external MATRIX input signals into the corresponding matrix. The external MATRIX input connectors are located on the rear-panel of the MASTER module.

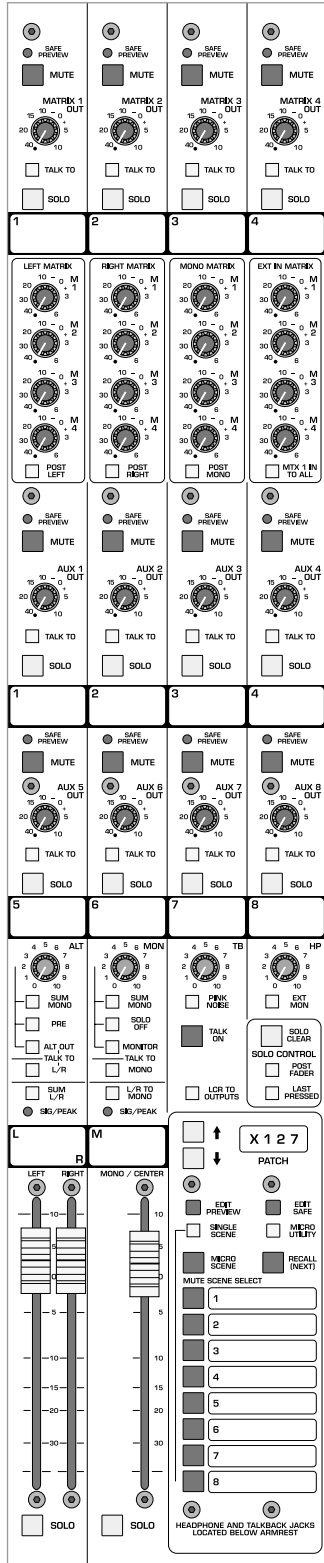
MTX 1-to-all

 This switch routes the signal from the external MATRIX input-1 jack to the external MATRIX input-level controls 1–4. This way, a single external input can be added to each of the four matrices.

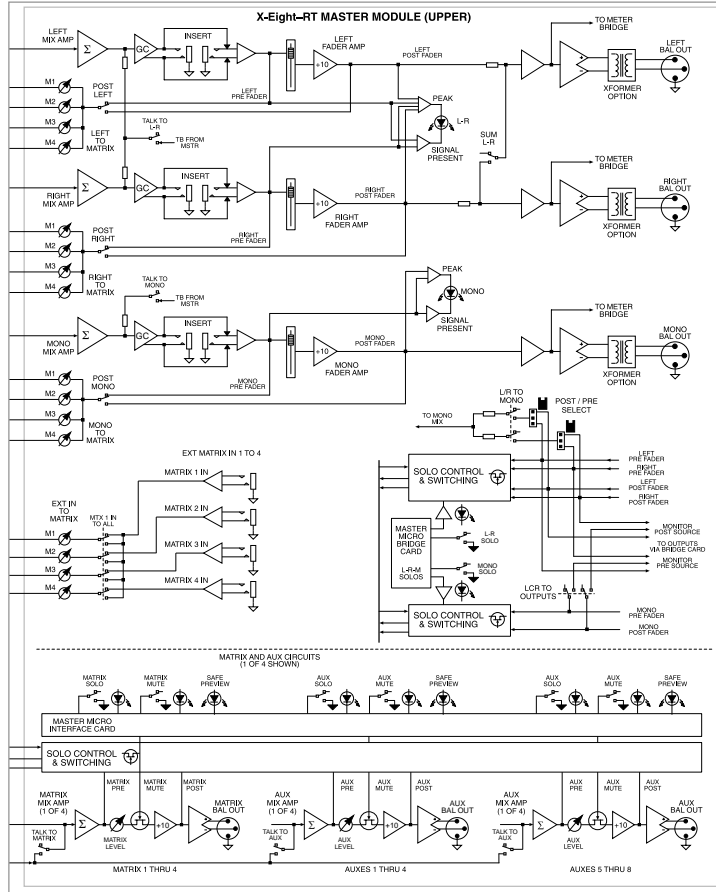
When this switch is down, the external MATRIX input jacks 2, 3 and 4 are disabled.

6 master RT module

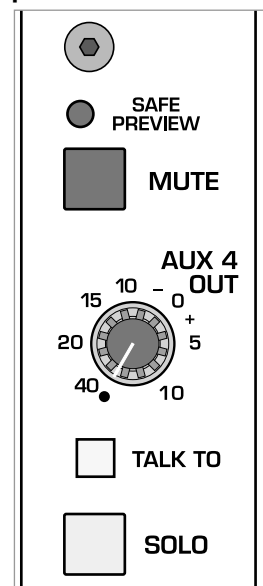
module



block diagram



panel



aux master output features

This section includes the standard output features for AUX SENDS 1–8.


safe preview LED

see—mono input module


mute

see—mono input module


aux 1–8 output levels

 The AUX MASTER output level controls govern the levels that appear at the corresponding AUX output connectors on the rear-panel.

auxiliary 1–4 talkback—TALK TO

 This switch adds the TALKBACK system output to the AUX outputs. The level of the TALKBACK signal is set by the TALKBACK level control in the MASTER section.

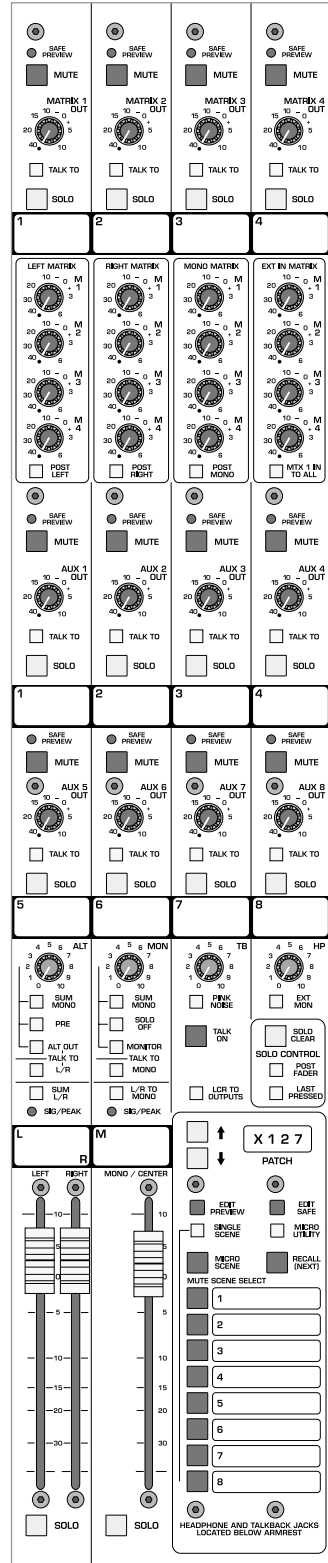
solo

 Pressing this switch will include or exclude the AUX from the console's SOLO system.

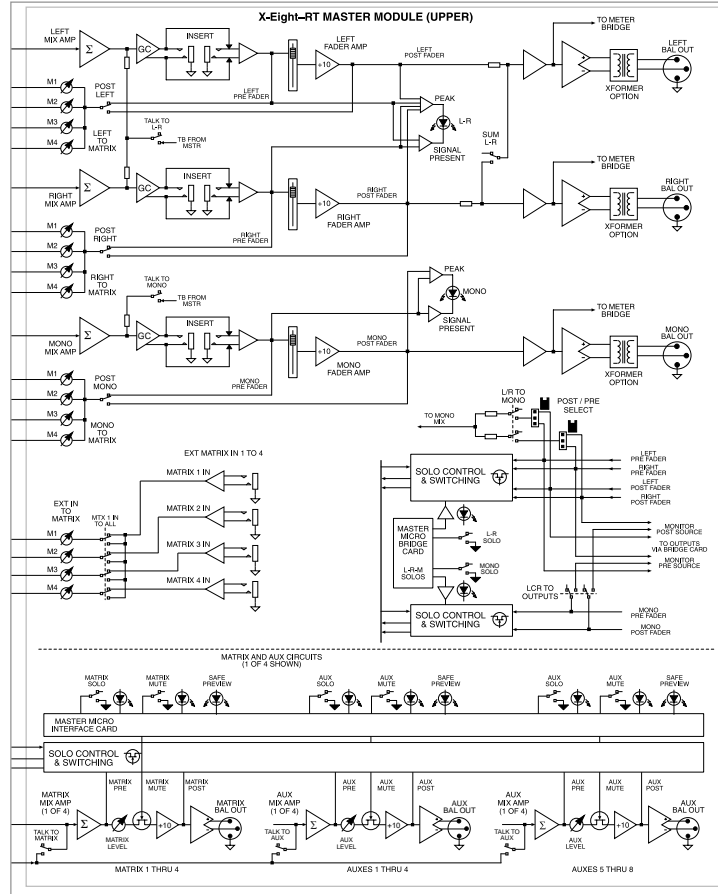
see—master module, solo control system

6 master RT module

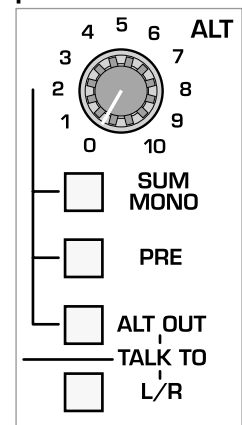
module



block diagram



panel




alternate output features

The alternate output section allows assignment of the left and right master signals to a separate pair of balanced male XLR jacks on the rear-panel. By utilizing the mode switches located below the ALT OUT level control, these signals can be derived in a number of ways.

In default mode (no switches depressed), the post-fader left and right MASTER signals are routed through the ALT OUT level control and appear at the ALT OUT connectors.

alternate output level—ALT OUT

 This control governs the levels that appear at the ALT OUT left and right balanced XLR connectors on the rear-panel.

sum mono

The MAIN left and right signals are summed-to-mono before the alternate output jacks. This summing does not affect the MAIN left and right outputs.

The MAIN left and right signals are routed in-stereo through the ALT OUT level control and appear at the left and right ALT OUT balanced male XLR connectors on the rear-panel.

pre

The signal feeding the ALT OUT section are taken before the main left and right faders.

The signal feeding the ALT OUT section are taken after the MAIN left and right faders.

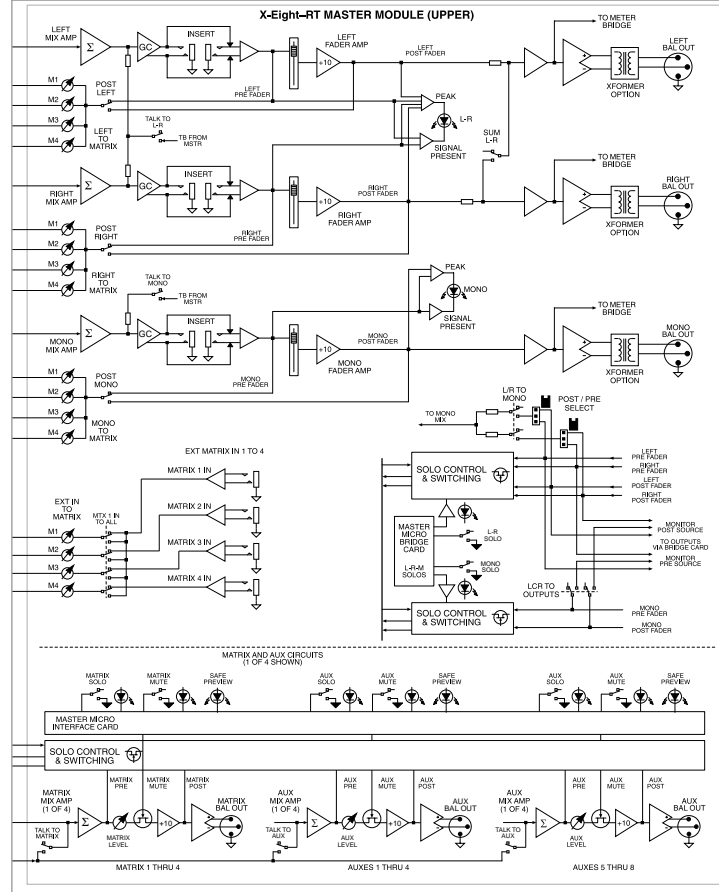
talkback—TALK TO ALT OUT

The TALKBACK system output is added to the left and right ALT outputs. The level of the TALKBACK signal is set by the TALKBACK level control in the MASTER section.

6 master RT module

module


block diagram




panel

left/right master fader features

talkback left/right—TALK TO L/R


 The TALKBACK system output is added to the left and right MASTER output. The level of the TALKBACK signal is set by the TALKBACK level control in the master section.

sum left/right—SUM L/R

 The MAIN left and right signals are summed together as a mono signal and appear at the left and right output balanced-male XLR connectors on the rear-panel.

 The MAIN left and right signals appear in-stereo at the left and right output balanced-male XLR connectors on the rear-panel.


signal /peak LED—SIG/PEAK

 This dual-color LED responds to the combined pre-fader stereo signal. It illuminates green with varying brightness in proportion to the audio signal. When the signal approaches clipping, either pre or post fader, the LED illuminates red.

left and right master faders

These faders govern the MAIN left and right output levels.

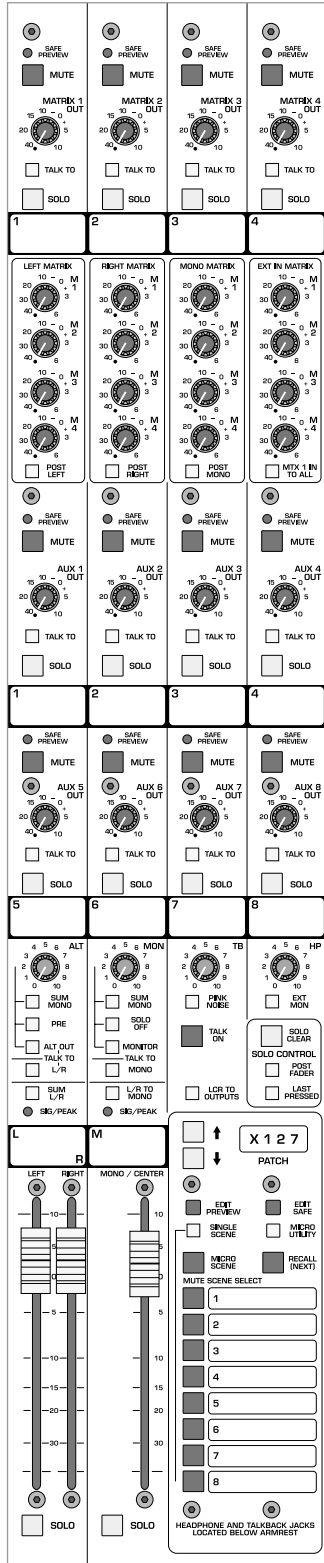
solo

 Pressing this switch will include or exclude the left and right signals from the console's SOLO system. The signals are monitored in stereo.

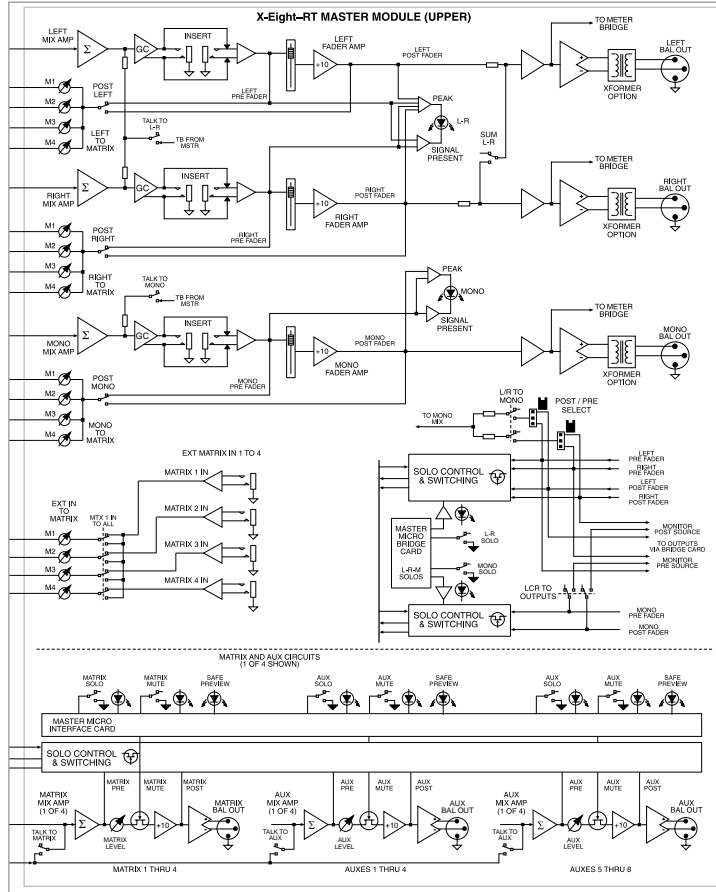
see—**master module**, solo control system

6 master RT module

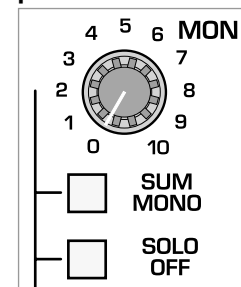
module



block diagram



panel



local monitor output features


The local MONITOR output section controls the audio feed for the console operator. Features are similar to those of ALT OUT section, except that the MONITOR section is normally used to access the SOLO system as well as MAIN outputs.

Like the alternate output section, it provides the ability to assign the left and right master signals to a designated pair of balanced-male XLR connectors on the rear-panel.

By utilizing the mode switches located below the local MONITOR output level control, these signals can be derived in a number of different ways. In default mode (no switches depressed), the post-fader left and right MASTER signals are routed through local MONITOR level control and appear at the MONITOR OUT balanced-male XLR connectors on the rear-panel.

This feed is replaced by the SOLO signal when a SOLO is activated on the console.

monitor-out level

 This control governs the levels that appear at the MONITOR OUT left and right balanced XLR connectors on the rear-panel.

sum mono

The signal feeding the MONITOR OUT section are taken before the MAIN left and right faders.

The signal feeding the MONITOR OUT section are taken after the MAIN left and right faders.

solo off

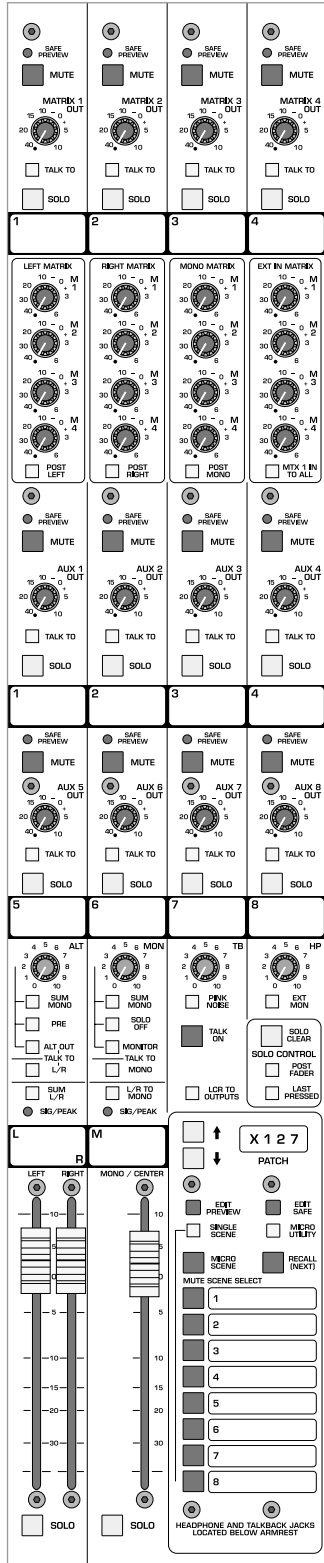
When any of the SOLO switches on the console are active, the SOLO audio is routed in stereo through the MONITOR OUT level control and appears at the left and right MONITOR OUT balanced-male XLR connectors on the rear-panel.

This overrides the left and right feed to the MONITOR output.

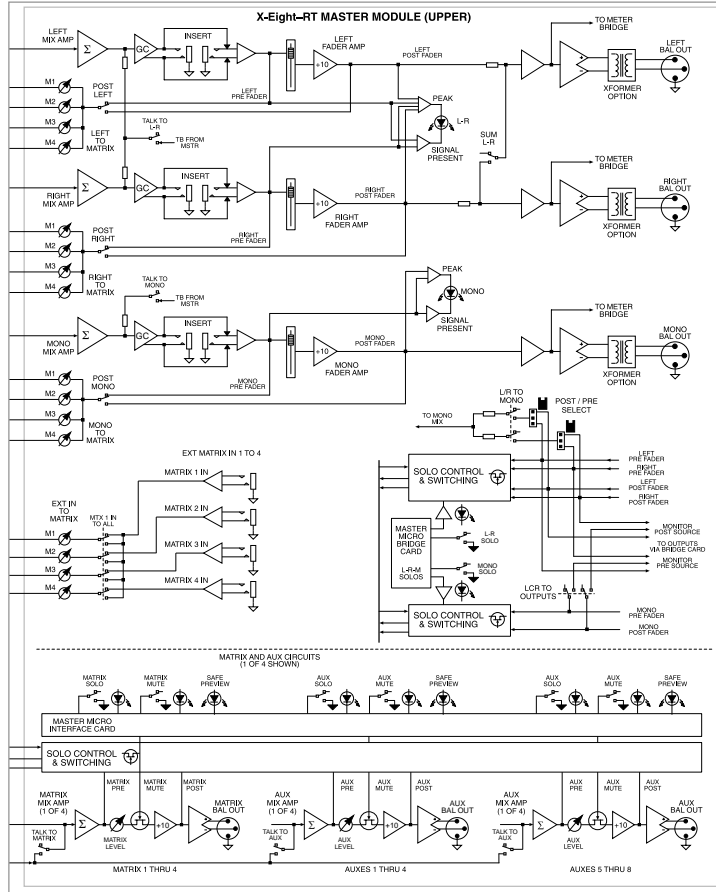
The MONITOR output is not affected by the SOLO system.

6 master RT module

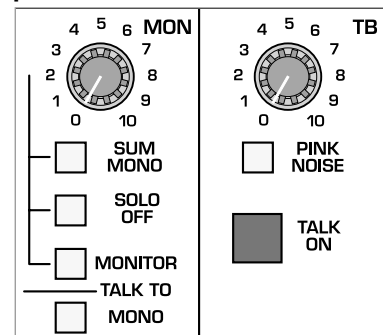
module



block diagram



panel



features

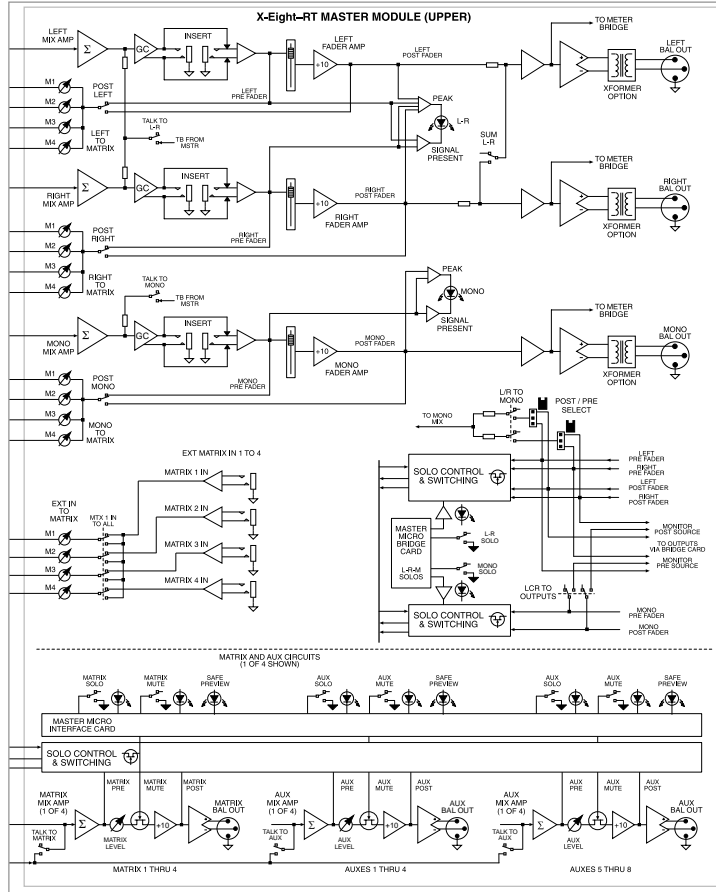
monitor talkback—TALK TO MONITOR OUT

☐ The TALKBACK system output is added to the left and right MONITOR outputs. The level of the TALKBACK signal is set by the TALKBACK level control in the MASTER section.

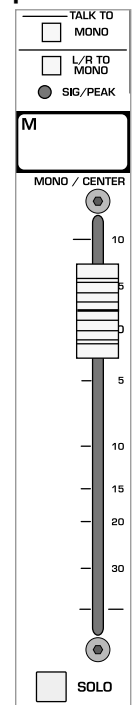
6 master RT module

module

block diagram




panel




mono master level features


mono talkback—TALK TO MONO

 The TALKBACK system output is added to the mono MASTER output. The level of the TALKBACK signal is set by the TALKBACK level control in the MASTER section.


left/right to mono—L/R TO MONO

 The MAIN left and right post-fader signals are summed together as a mono signal and are routed to the mono bus.

The summed left and right signals automatically combine with any signals that are assigned directly to the mono bus to make up the mono output.

 The mono output consists exclusively of signals assigned directly to the mono bus. Signals that appear at the MAIN left and right faders do not appear at the mono output.


sig/peak LED—SIG/PEAK

 This dual-color LED responds to the pre-fader mono signal. It illuminates green with varying brightness in proportion to the audio signal. When the signal approaches clipping, either pre or post fader, the LED illuminates red.

mono master fader

This fader governs the mono output level.

folo

 Pressing this switch will include or exclude the mono signal from the console's SOLO system.

see—**master module**, solo control system

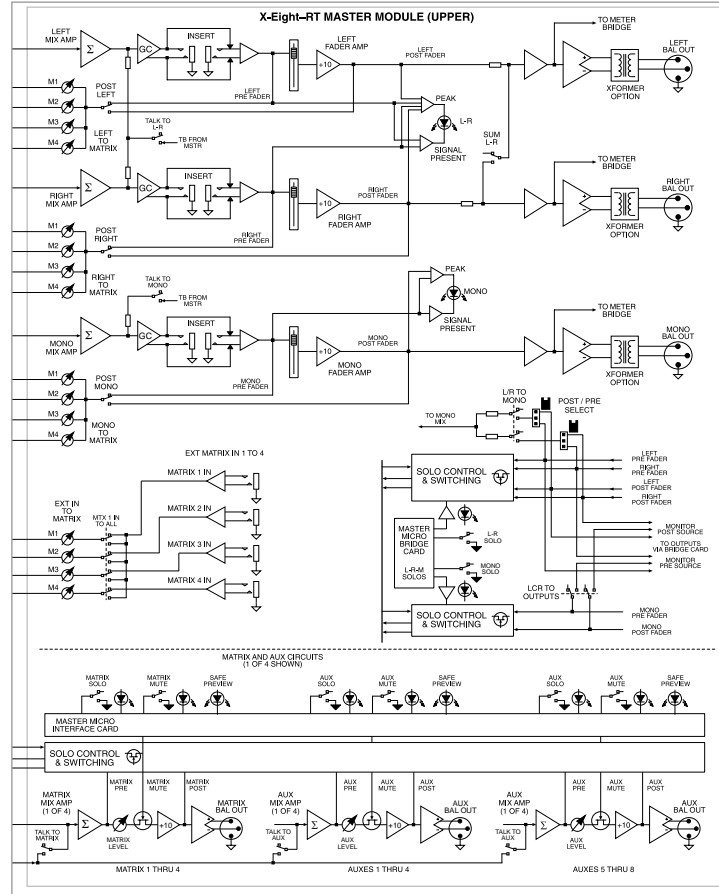
6 master RT module

module

The front panel features a grid of controls:

- Matrix 1-4:** Each has a rotary knob (0-20), a 'TALK TO' checkbox, and a 'SOLO' checkbox.
- Aux 1-8:** Each has a rotary knob (0-20), a 'TALK TO' checkbox, and a 'SOLO' checkbox.
- Monitoring:** Includes 'SUM MONO', 'PRE', 'ALT OUT TALK TO L/R', 'SUM L/R', 'SIG/PEAK', 'MON', 'SOLID MON', 'PINK NOISE', 'TALK ON', 'SOLO CLEAR', 'SOLO CONTROL POST FADER', and 'LAST PRESSED'.
- Headphones/Talkback:** 'LEFT' and 'RIGHT' sliders, 'MONO / CENTER' slider, and 'SOLO' checkboxes.
- Utility:** 'PATCH' (X 1 2 7), 'MUTE SCENE', 'MUTE SCENE SELECT' (1-8), 'RECALL (NEXT)', and 'HEADPHONE AND TALKBACK JACKS LOCATED BELOW ARMREST'.

block diagram



panel

- 4 5 6 TB**: Knob symbol
- 3 7**: Knob symbol
- 2 8**: Knob symbol
- 1 9**: Knob symbol
- 0 10**: Knob symbol
- PINK NOISE**
- TALK ON**
- LCR TO OUTPUTS**

talkback features


The TALKBACK system provides facilities for assigning an external signal (usually the console operator's microphone) to any of the console's outputs.

Other signals can be routed through the TALKBACK system including an external tone oscillator or the built-in PINK NOISE generator.


The Talk Back system is commonly used for testing the console's output section.



talkback level

 This control sets the level that appears at any of the outputs with their respective TALK TO switches engaged. It also governs the audio level at the TALKBACK output XLR connector on the rear-panel.

pink noise

 The TALKBACK in-connector is disabled and PINK NOISE is sent through the TALKBACK system.

Talk On

This switch must be activated for the TALKBACK system to operate. There are two-ways to activate it:


- ① **Momentary**—Depressing the button for more than 1/2 of a second will cause it to act as a momentary switch. When the button is released, the TALKBACK section will be shut-off.
- ② **On / Off** — A quick tap on the button (less than 1/2 second) will cause the switch to electronically change its state from on-to-off or from off-to-on.


left/right/center—LCR TO OUTPUTS

This feature is useful for monitoring the console when creating an LCR mix. Local monitoring is usually done with two speakers. The LCR to outputs feature combines the center (or mono) signal with the left and right signals, creating a *phantom* center channel. This feature affects the ALT OUT section, the MONITOR OUT section, the HEARING ASSIST output and the headphone feed.

This feature affects the Alt Out section, the Monitor out section, the Hearing Assist output and the Headphone feed.



 Center (mono) channel is not included in the MONITOR paths.

 The center (or mono) channel is combined with left and right MONITOR outputs. This makes it possible to hear the center channel without a designated speaker.

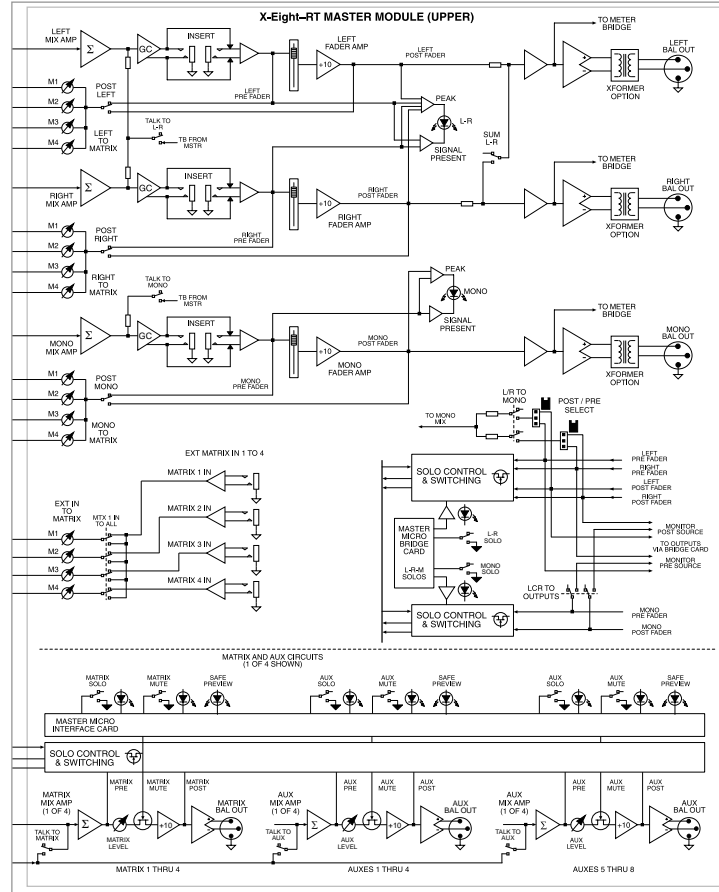
This makes it possible to hear the Center channel without a designated speaker.



6 master RT module

module


block diagram



panel

solo control features

headphone level

 This control governs the level at the headphone jack located in the front of the console under the arm rest.

solo clear

When this switch is lit, it indicates that at least one SOLO on the console is active. Depressing this switch will clear any active solos and this switch light will go out.

post-fader

This switch determines whether the SOLO system sources will be pre- or post-fader). It affects all inputs and outputs globally throughout the console.

The audio from active solos is derived after the corresponding fader or MASTER level control. This is also referred to as AFL—after fader listen.

The audio from active solos is derived before the corresponding fader or MASTER level control. This is also referred to as PFL—pre-fader listen.

last pressed

The SOLO system can operate in two different modes, as described below. In either mode, a solo can be activated by pressing the desired local SOLO button. The button will light up to indicate that the solo is active, and pressing an active SOLO button (the one that is lit) will make it inactive and the button's light will go out.

Any number of solos can be active at once. There are two-ways to make active solos inactive.

- 1 Press an active SOLO button (the one that is lit) and it will be made inactive.
- 2 Press the SOLO CLEAR button

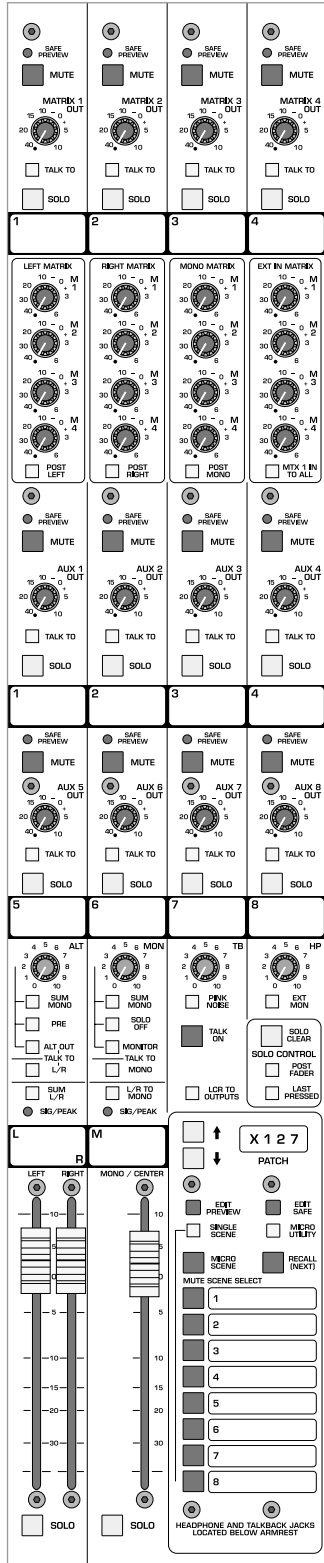
see—**solo clear**

Only one solo can be active at a time.

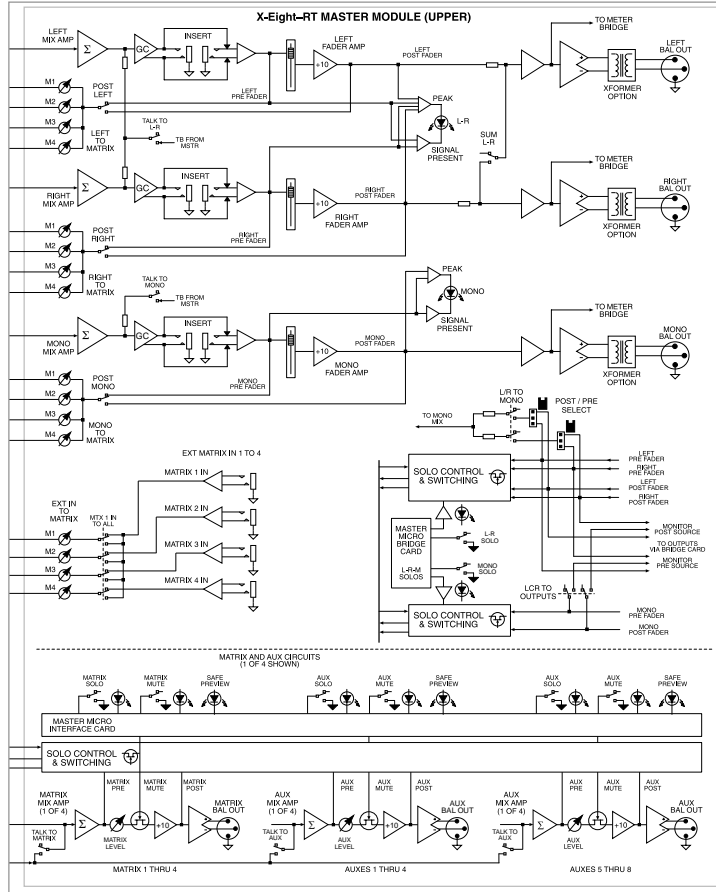
Pressing on any inactive SOLO button will activate that solo and remove any previous solo from the SOLO bus.

6 master RT module

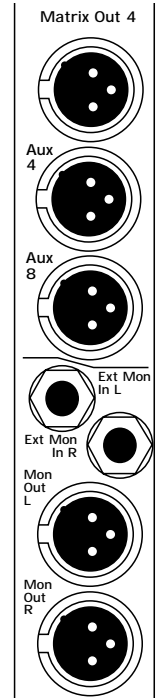
module



block diagram



panel



rear panel features

matrix 1–4 output XLR's



This group of four balanced male XLR connectors carries the MATRIX 1–4 output signals. These outputs are controlled by their respective MATRIX output level controls.

see—**matrix**, front-panel description

auxiliary 1–8 output XLR's



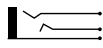
This group of eight balanced male XLR connectors carries the AUX 1–8 output signals. These outputs are controlled by their respective AUX output level controls.

see—**aux master output**, front-panel description


left, right, and mono insert points

Separate 1/4" TRS jacks provide the ability to insert external signal processor into the signal paths of the left, right and mono MASTERS.

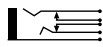
insert sends—left, right, and mono




These jacks connect to the input of signal processors. The signals are ground compensated.

Plugging a 1/4" plug into this jack does **not** break the internal signal flow of the respective Left, Right, and Mono Masters. 

insert returns—left, right, and mono

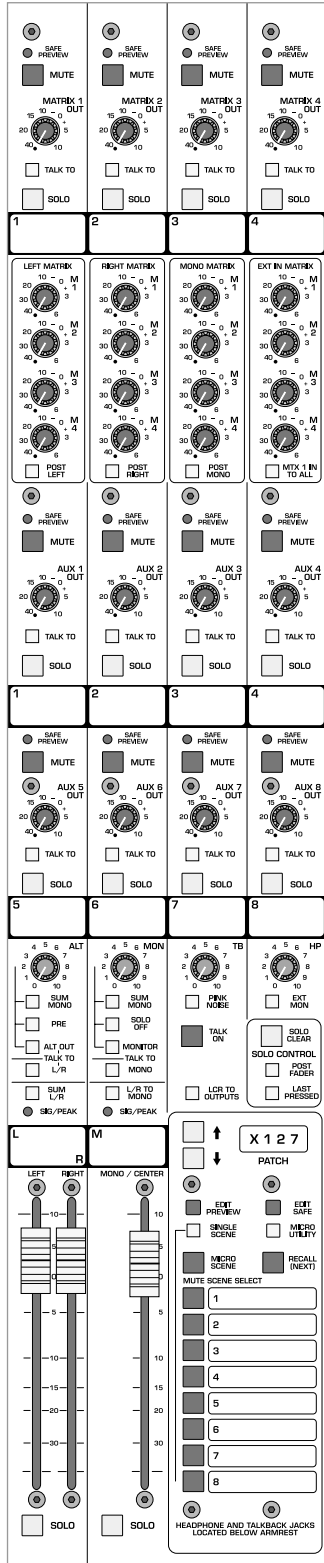


These jacks connect to the outputs of a signal processors. They can accept balanced or unbalanced signals.

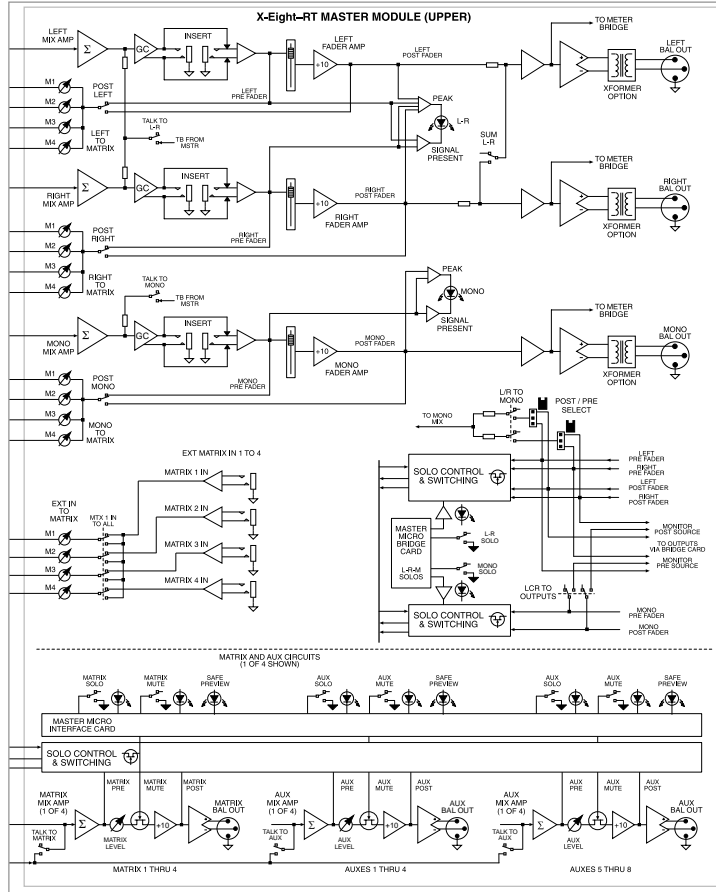
Plugging a 1/4" plug into this jack **breaks** the signal flow of the respective Left, Right, and Mono Masters. 

6 master RT module

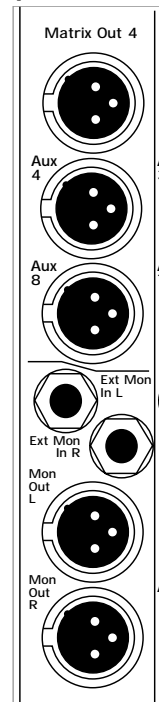
module



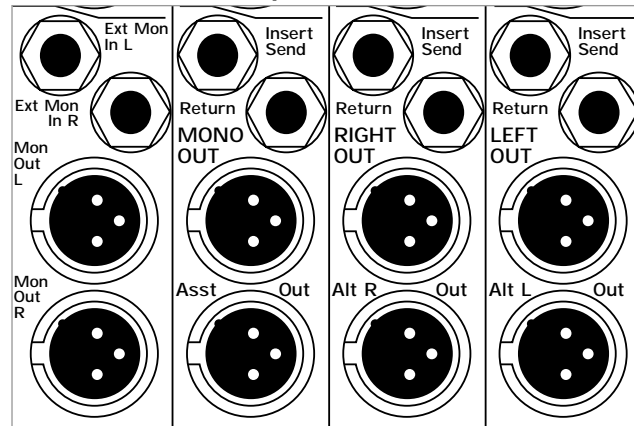
block diagram



panel



monitor, alt, asst outputs and insert detail



rear panel features

left, right, and mono output XLR's



This group of three balanced male XLR jacks carries the left, right and mono output signals. These outputs are controlled by the left, right and mono output faders.

see—**left, right, and mono masters**

hearing assist output



This single balanced male XLR carries a mono signal that is made up of a sum of the left and right MASTER outputs. When the LCR TO OUT switch is depressed, the center/mono output signal is included with the summed left and right signal that appears at this jack.

This output does not have a designated level control. The summed signal is derived after the left, right and mono (when the LCR TO OUT switch is depressed) MASTER faders.

left and right alternate output XLR's



This pair of balanced male XLR connectors carries the left and right ALT OUT signals. These outputs are controlled by the ALT OUT level control.

see—**left and right alternate output**, front-panel description

left and right monitor output XLR's

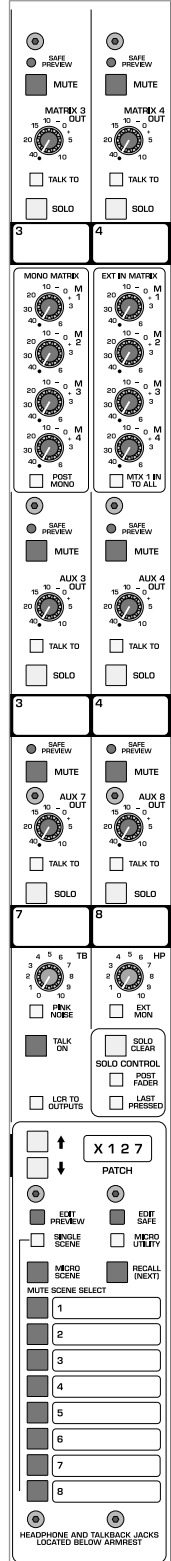


XLR OUT carries the left and right MONITOR signals. These outputs are controlled by the MONITOR level control.

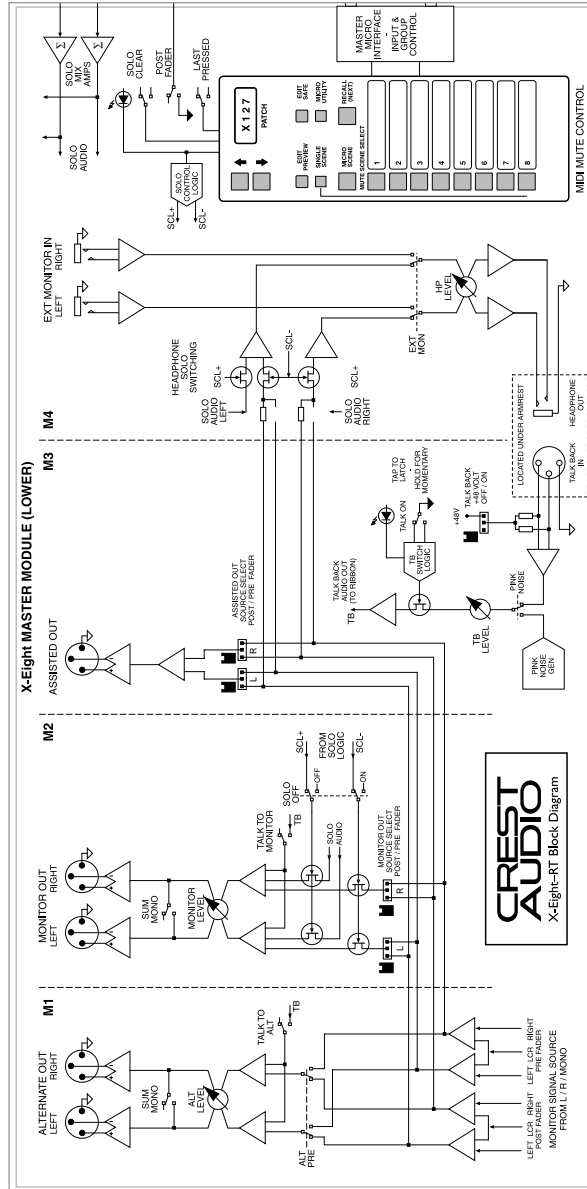
see—**monitor**, front-panel description

7 microprocessor muting system

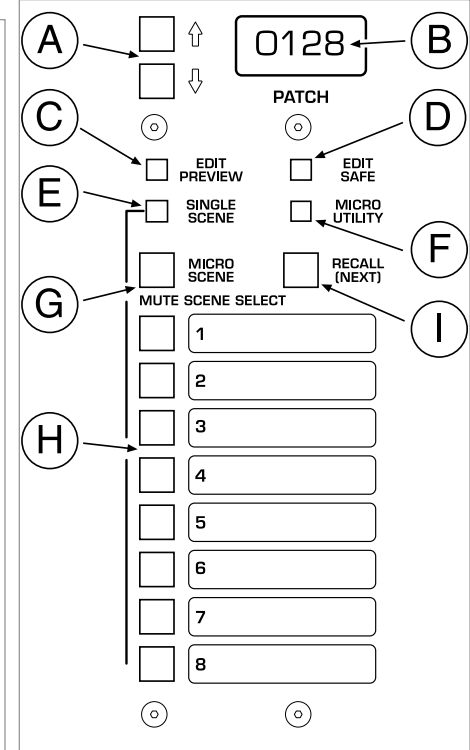
module



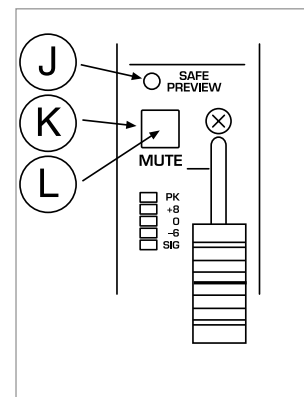
block diagram



mute control panel



typical channel



features

Crest Audio X-Eight consoles are equipped with a MICROPROCESSOR MUTE CONTROLLER which permits the user to set-up a series of MUTE SCENES, each controlling any combination of channels and outputs. These scenes can then be recalled, either singly or in combination, to allow the operator to easily control the mutes during a performance.

The MUTE CONTROLLER features 128 SEQUENCED SCENES (patches) along with eight MANUAL MUTE SCENES. The 128 PATCHES can be stepped through using a single button, or remotely activated by the use of MIDI patch-change commands. The PATCHES can be combined with the MANUAL SCENES to allow different combinations of channel mutes.

The following is an overview of the controls and indicators of the MUTE CONTROLLER and the channels. The following information pertains to X-Eight consoles with Rev 1.12 firmware.

mute controller

A—UP/DOWN

Each press of these switches increments or decrements the PATCH DISPLAY **B**. Holding either button down will allow quickly scrolling up or down. The buttons are also used to select the parameters and settings of the system while in UTILITY mode.

B—DISPLAY

This four-character alpha-numeric display normally shows the current PATCH 1–128 being recalled. It is also used to display the parameters and settings of the system while in UTILITY mode.

C—EDIT PREVIEW

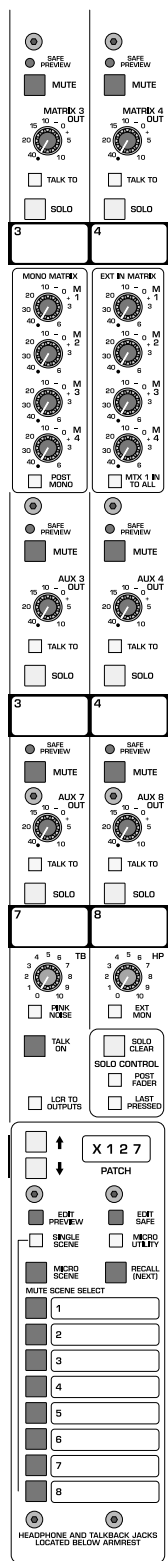
Pressing this switch puts the system into EDIT/PREVIEW mode, allowing the operator to view and change the contents of any selected MUTE SCENE. The internal red LED will blink while in this mode, along with the status LED's **J** of any channels assigned to the selected MUTE SCENE. Pressing a CHANNEL MUTE switch **K** will add or remove a channel from that scene. Pressing the EDIT/PREVIEW switch again will exit back to normal operating mode.

D—EDIT SAFE

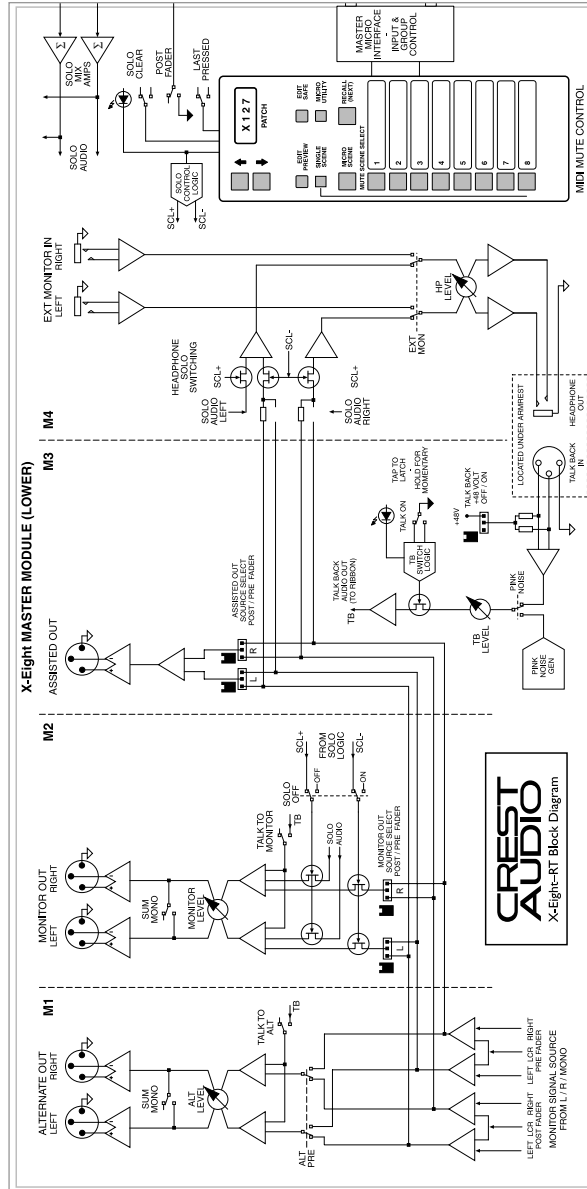
Pressing this switch puts the system into EDIT SAFE mode, allowing the operator to view and change the contents of the SAFE memory. The internal green LED will blink while in this mode, along with any channels assigned to the SAFE SCENE. Pressing a CHANNEL MUTE switch **K** will add or remove a channel from the SAFE SCENE. If a channel is included in the SAFE SCENE, it can't be muted from a MUTE SCENE. This allows the operator to remove a channel all scenes without having to edit any of the scenes themselves. Pressing the EDIT SAFE switch again will exit back to normal operating mode.

7 microprocessor muting system

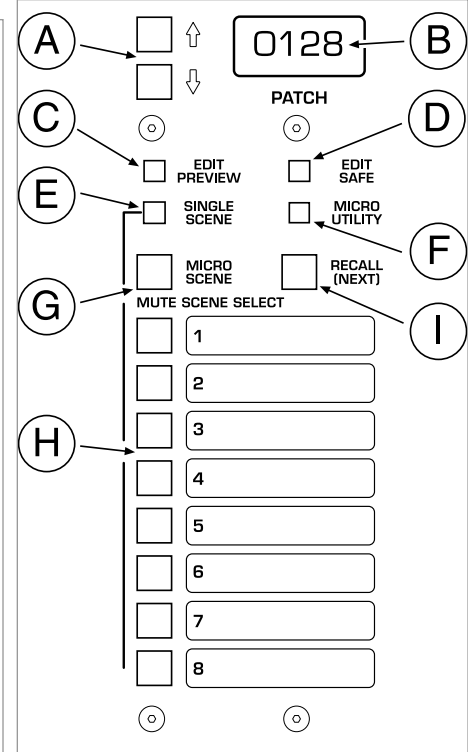
module



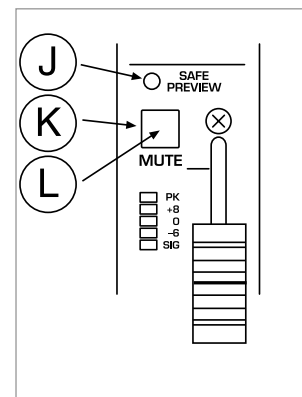
block diagram



mute control panel



typical channel



features

mute controller

E—SINGLE SCENE

There are nine MUTE sources available from the MUTE CONTROLLER: the eight MANUAL MUTE SCENES **H**, and the MICRO SCENE **G**. Normally any or all of these nine sources can be active at-one-time, which allows the operator to combine different mute patterns. The SINGLE SCENE switch, when depressed, permits only one of the nine-sources to be active at-one-time.

F—MICRO UTILITY

This latching switch will put the system into UTILITY mode. The operator can then access and view the various parameters and functions of the controller using the UP/DOWN buttons **A** and the DISPLAY **B**.

G—MICRO SCENE This switch activates the SEQUENCED SCENE (PATCH). The DISPLAY **B** shows which of the 128 possible SCENES are active.

H—MANUAL MUTES These eight switches activate the associated MANUAL MUTE SCENE. Additionally, these switches, along with **G**, select which MUTE SCENE is being edited when in EDIT/PREVIEW mode.

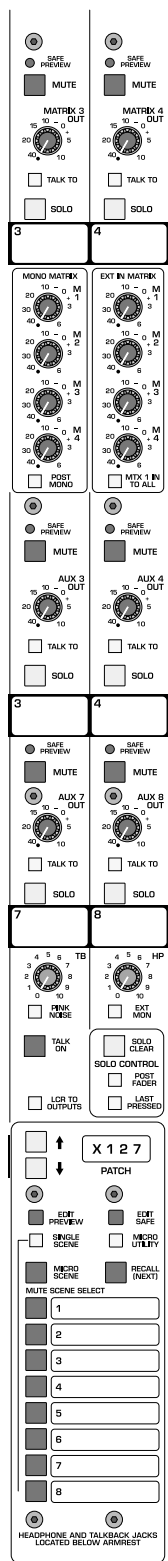
I—RECALL (NEXT) Each press of this switch increments the SEQUENCED MUTES by one, the DISPLAY **B** will reflect this. Also used to activate the displayed scene when an UP/DOWN **A** button was used to scroll to a new scene. In this case, an * will be displayed as the first-character in the display to indicate that the displayed number is not currently the active scene. Pressing RECALL will put that displayed SCENE into place and clear the * from the display.

All of these actions will take place, but the displayed SEQUENCED SCENE will not be active (mutes not enabled) —unless the MICRO SCENE switch **G** is lit.

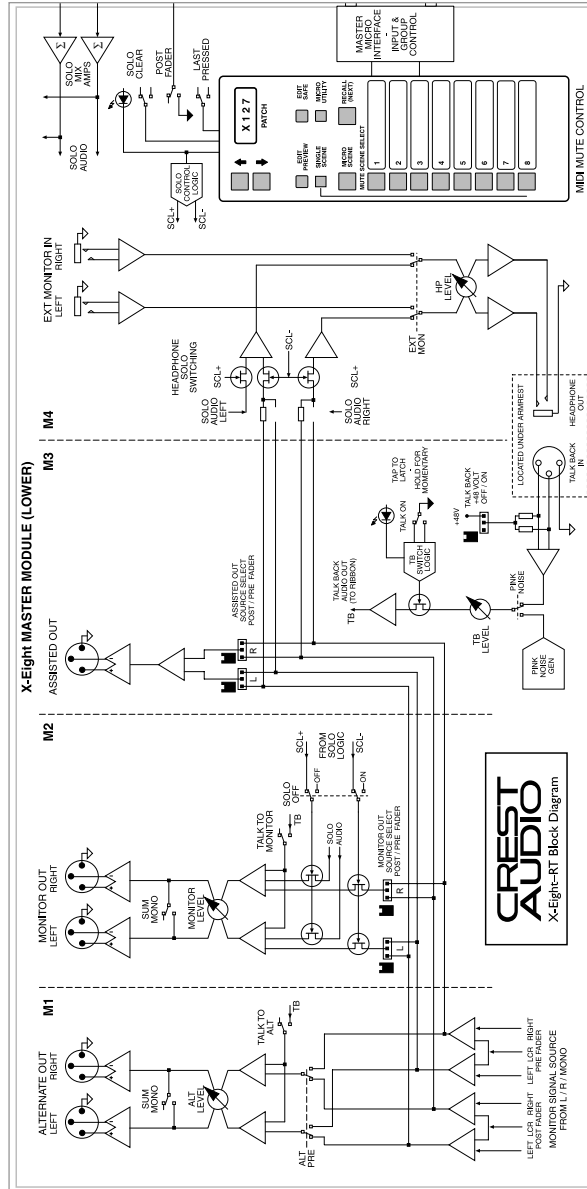


7 microprocessor muting system

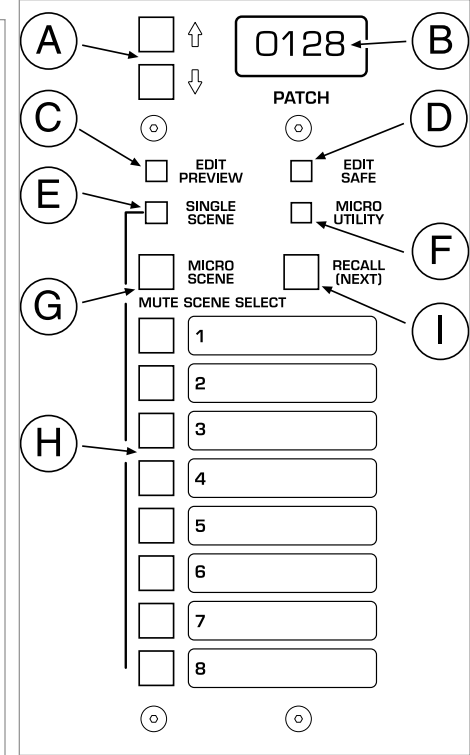
module



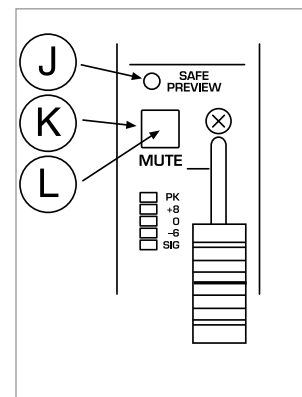
block diagram



mute control panel



typical channel



features

channel mute controls

J—STATUS LED

This bi-color LED, associated with each controlled-mute, shows the condition of that mute.

One-of-five possible states is possible:

- ① OFF—The channel is not controlled by the MUTE CONTROLLER.
- ② STEADY RED—The channel is being muted by a MUTE SCENE.
- ③ STEADY GREEN—The channel is in SAFE MODE, cannot be muted by any scene.
- ④ FLASHING RED—The system is in EDIT/PREVIEW mode and the channel is in the currently selected SCENE.
- ⑤ FLASHING GREEN—The system is in EDIT SAFE mode and the channel is included in the SAFE SCENE.
- ⑥ MUTE SWITCH—This momentary-switch toggles the channel's LOCAL MUTE and is also used to assign/un-assign channels to MUTE and SAFE SCENES, when in the EDIT mode.
- ⑦ MUTE LED—This internal red-LED will illuminate whenever the channel is muted, either locally or by a MUTE SCENE.

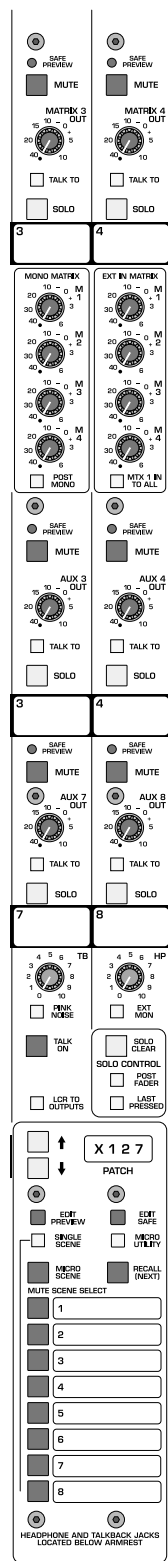
If a channel is already locally muted when a relevant MUTE SCENE is activated, this LED will remain lit. Two sources are now telling the channel to mute: the LOCAL MUTE and the MUTE SCENE. If the MUTE switch **K** is pressed once, the LOCAL MUTE will be cleared, but no apparent change will occur. The MUTE LED **L** will still be lit, and the STATUS LED **J** will still be steady-red.

At this point there is only one source telling the channel to mute; the MUTE SCENE. If the MUTE SCENE is then disabled, the channel will un-mute because the LOCAL MUTE was previously cleared.

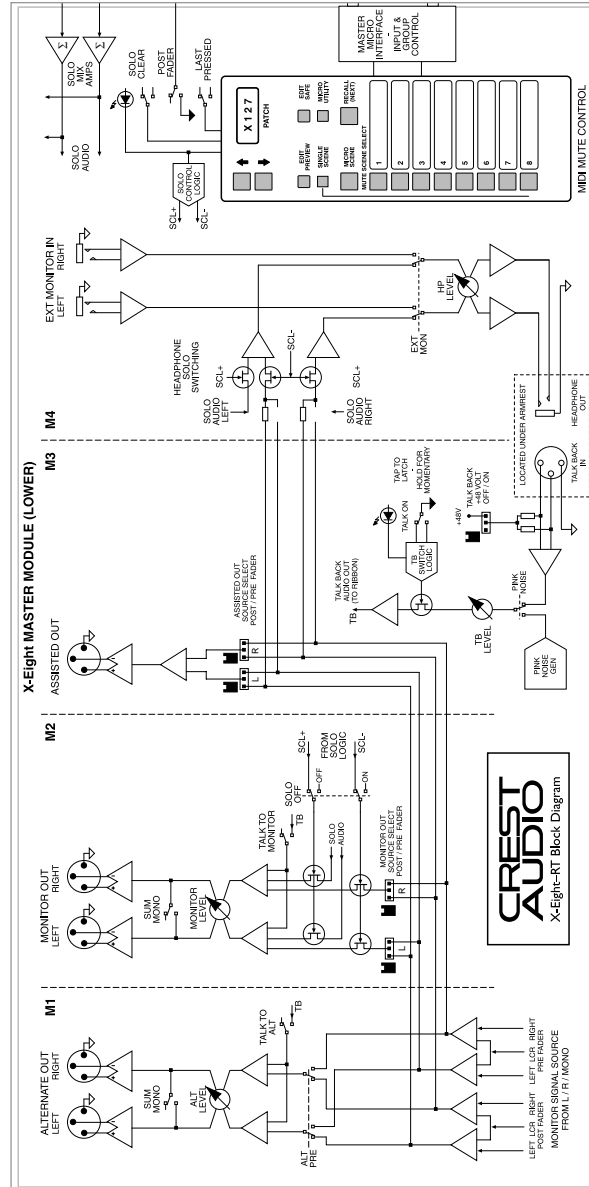
The user should be aware of this fact—the local mutes can toggle invisibly behind a MUTE SCENE. For an even number of presses on the MUTE switch **K**, the LOCAL MUTE will return to its original state, an odd-number of presses will change the LOCAL MUTE to its opposite-state.

7 microprocessor muting system

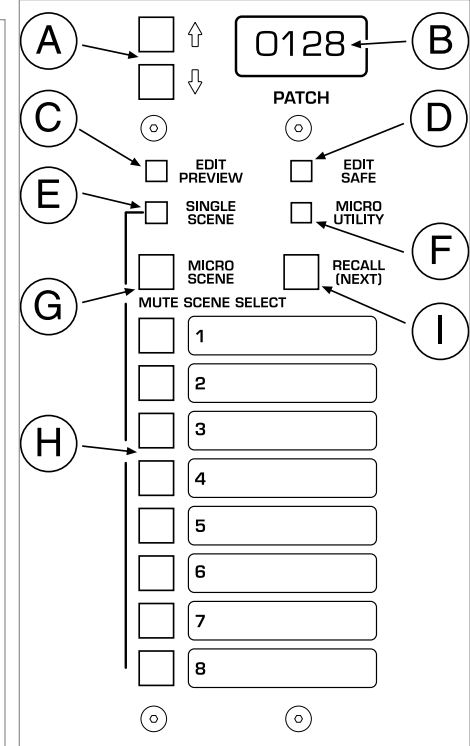
module



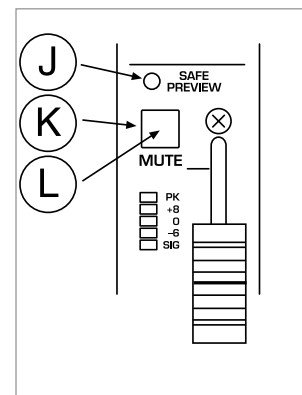
block diagram



mute control panel



typical channel



features

mute scenes

There are nine possible scene sources: MANUAL MUTE SCENES 1–8, and the MICRO SCENE. The MICRO SCENE button **G** is the enable-switch for the 128 possible SEQUENCED SCENES. The eight MANUAL MUTES are totally independent of the 128 SEQUENCED SCENES, giving the system a total of 136 possible mute patterns. Each of the 136 patterns can consist of any combination of channel and output mutes, all of the nine possible sources can be combined to create additional patterns.

creating a mute scene—or editing an existing one

1 Press the EDIT PREVIEW button **C**

The button will begin to blink, indicating that the system is in EDIT PREVIEW MODE.

2 Select a SCENE to edit

The system will automatically choose a SCENE to edit, depending on the status of the system when EDIT PREVIEW was selected. If the system was in SINGLE SCENE mode (switch **E** depressed), the MUTE SCENE that was currently active will be selected to edit. If the system was in MULTIPLE SCENE mode (switch **E** not depressed), the MICRO SCENE will be automatically selected for editing. If a different scene than the default is to be edited, that scene should now be chosen by pressing one-of-the-nine possible MUTE SCENE buttons **G** and **H**, it will illuminate to show its selection. Only one scene can be selected for editing, the condition of the SINGLE SCENE button **E** has no effect in EDIT mode.

3 When MICRO SCENE is selected

If MICRO SCENE **G** was selected, then the UP/DOWN **A** buttons should be used to select the desired SEQUENCED SCENE (PATCH) to be edited. The DISPLAY **B** will indicate which of the 128 possible patches is being worked on.

4 Assign channels to the SCENE

Any channels currently assigned to the SCENE being edited will have their STATUS LED'S **J** blinking-red. Pressing the associated MUTE switch **K** will assign/de-assign that channel to the SCENE.

5 Clearing a MUTE SCENE

If you wish to clear all assigned channels from a SCENE, press-and-hold the EDIT SAFE **D** button. After a brief delay, the display will change to CLR?. Continue to hold the button down until the display shows CLR.D. All channels assigned to that SCENE will be de-assigned and you can start fresh.

6 Saving your edit

Once you have a SCENE configured the way you want it, either press the blinking EDIT PREVIEW **C** button to exit EDIT mode and return to NORMAL mode, or select another SCENE to edit by pressing its associated switch **H**, or—if MICRO SCENE was selected—press the UP/DOWN **A** keys to select a new PATCH to edit. There is no store-button to press, the changes take place immediately while editing, and the SCENE is saved automatically when a new SCENE is selected or upon exiting EDIT mode.

When returning to NORMAL mode, the system will revert back to the PATCH that was in place before entering EDIT mode.



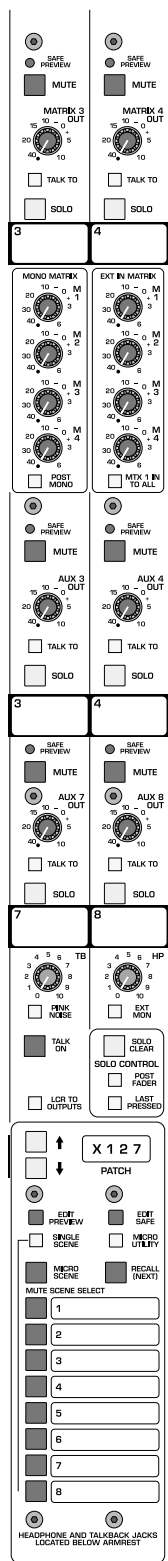
This immediate change will be most apparent when editing a scene that is currently the active scene—the MUTE SCENE that was on when EDIT mode was entered.



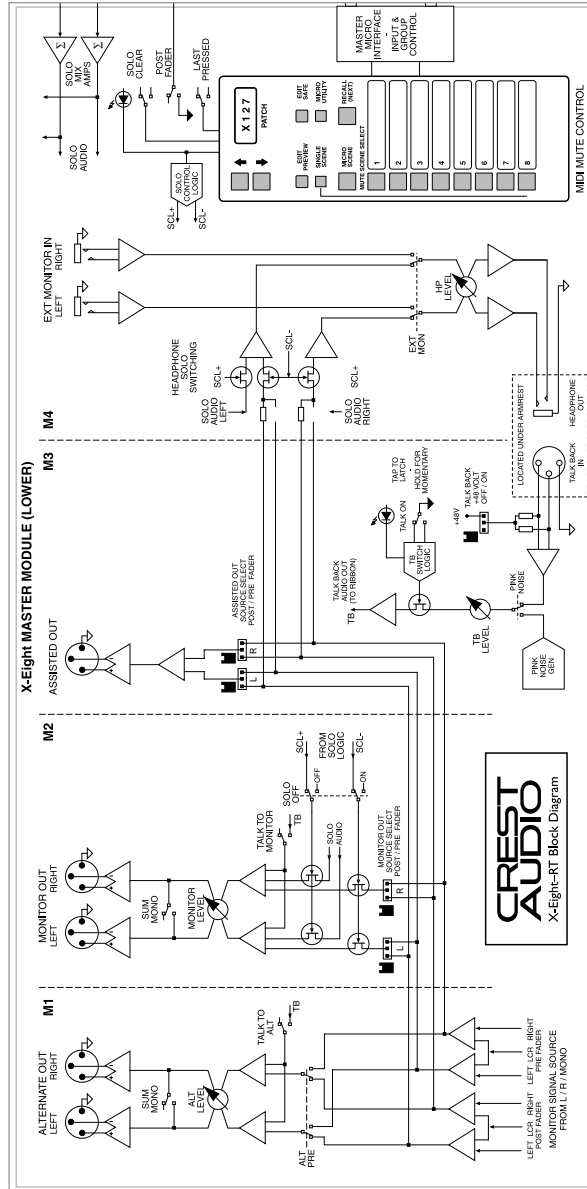
The MUTE LED **L** will change along with the STATUS LED **J** as a channel is added or removed from the scene during editing.

7 microprocessor muting system

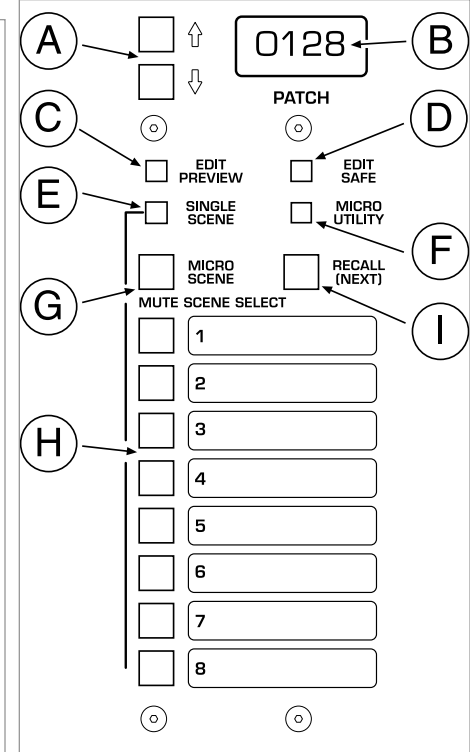
module



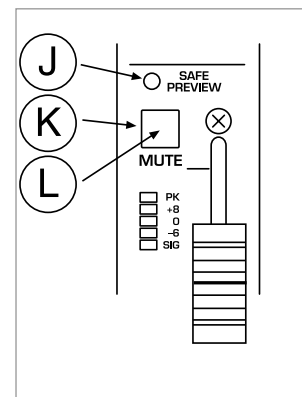
block diagram



mute control panel



typical channel



features

copying a mute scene

MUTE SCENES can be copied from a SEQUENCED SCENE (PATCH) to a MANUAL MUTE SCENE. Manual MUTES cannot be copied to sequenced scenes or to each other. To copy a SEQUENCED SCENE into a MANUAL MUTE SCENE, follow the steps outlined below.

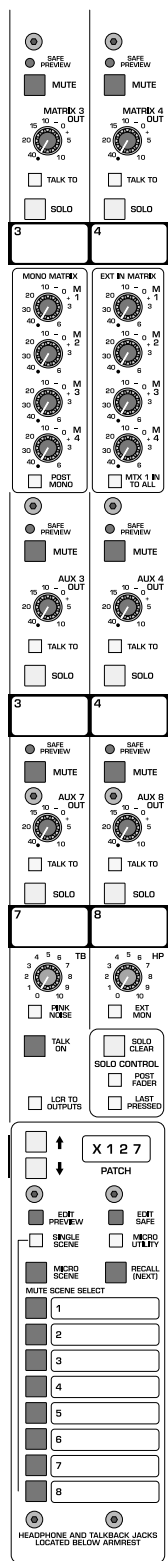
- 1 Press the EDIT PREVIEW button **C**, it will begin to blink, indicating that the system is in EDIT PREVIEW mode.
- 2 Select SEQUENCED SCENES by pressing the MICRO SCENE **G** button; it will illuminate.
- 3 Scroll to the SCENE to be copied using the UP/DOWN **A** keys to change the DISPLAY **B**.
- 4 Hold down the MICRO SCENE button. The display will show CPY?.
- 5 Continue holding-down the MICRO SCENE button **G**, while pressing the desired MANUAL MUTE switch **H**. The display will show COPY, and the sequenced SCENE MUTE pattern is copied to the target MANUAL MUTE—overwriting whatever pattern may have originally been there.
- 6 The newly created MANUAL MUTE SCENE can now be selected for editing by pressing its select switch **G**. The copied MUTE pattern will be there, you can use that as a starting point for your edits.
- 7 Exit back to NORMAL mode when you're done by pressing EDIT PREVIEW **C** again.

The copy feature can be used as a way to back-up your MANUAL MUTE SCENES, even though it is not possible to copy from MANUAL MUTES to any other mutes. Instead, use the highest-numbered PATCHES (120–127) to create the original versions of MANUAL MUTE SCENES. Then use the copy function to transfer these patterns into the MANUAL MUTES. It is always possible to revert back to the original PATCHES (120–127) and re-load/copy them into the MANUAL MUTES whenever needed.

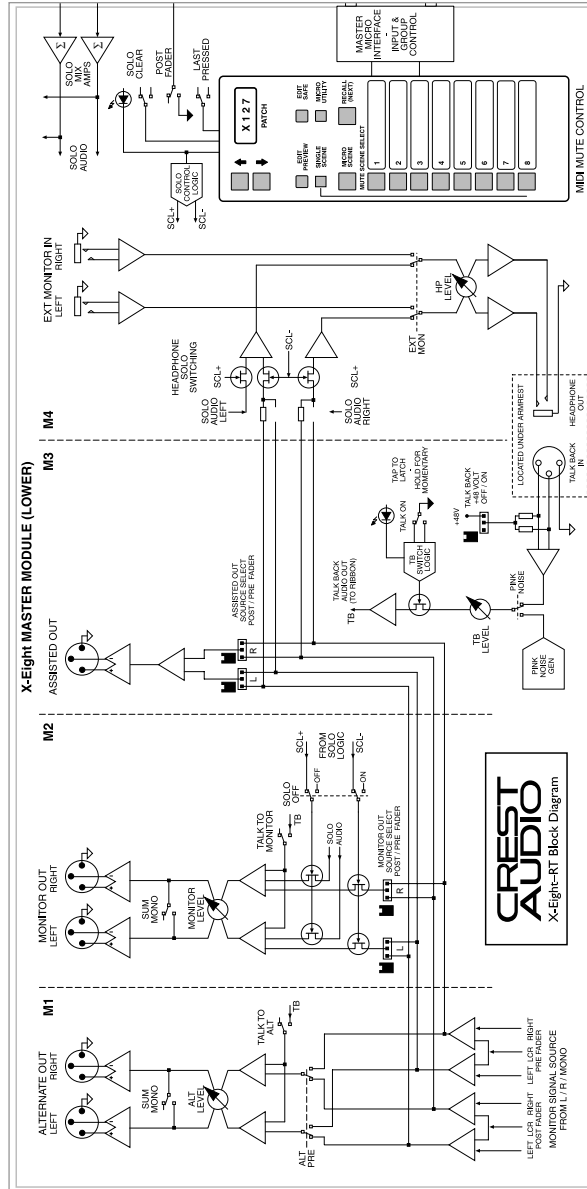
PATCH 128 can also be used as an ALL MUTE memory. Program it with all channels muted, then copy it to a MANUAL MUTE when the need arises to start a SCENE with all channels muted—instead of all channels un-muted. In order to start a SCENE with all channels un-muted, hold-down the EDIT SAFE button to clear all mutes in a SCENE when editing.

7 microprocessor muting system

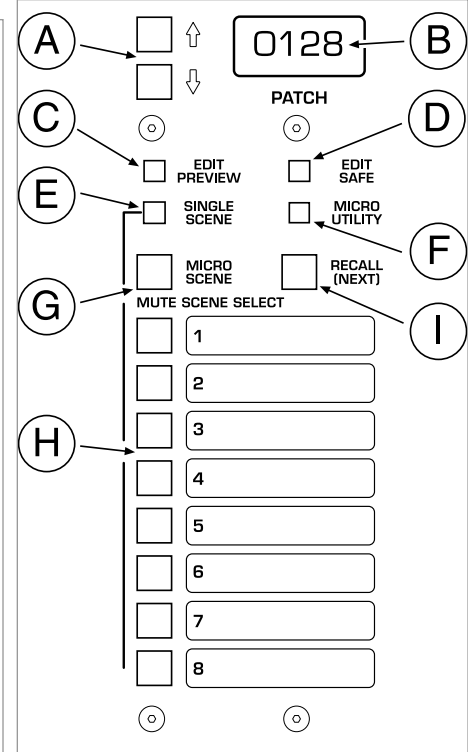
module



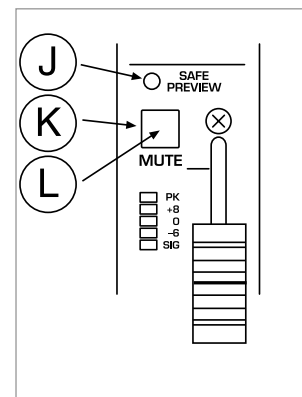
block diagram



mute control panel



typical channel



features

safe scene

There may be occasions when a channel needs to be made SAFE from all programmed mutes. This may occur during a show when an on-stage microphone needs to be used as an announcer's mic, or a switch-over has to be made to a backup-channel due to some technical difficulty. The SAFE SCENE allows a channel to be removed from the control of all mute scenes without having to edit any of the scenes. Once a channel is assigned to the SAFE SCENE, it will ignore all MUTE SCENE commands. The mute scenes themselves are not altered, it's only the channel's response that has been changed.

This feature allows temporary changes to be made to a show, due to night-ly needs, without having to edit the programmed scenes. The original scenes will still be stored in memory the next-time the show is performed.

The SAFE SCENE is always active, if a channel is assigned to the SAFE SCENE, it will ignore any mute commands from a MUTE SCENE. The STATUS LED J of a channel will be a steady-green color—if a channel is safe.

The LOCAL MUTE command is not affected by this SAFE, the LOCAL MUTE is always effective.



Editing the SAFE SCENE

1 Enter EDIT SAFE mode

Press the EDIT SAFE button **D**, it will begin to blink, indicating that the system is in EDIT SAFE mode.

2 Select a channel to safe

Pressing the MUTE switch **K** of a channel will assign/de-assign a channel to the SAFE SCENE. The STATUS LED J of any channel assigned to the SAFE SCENE will blink-green. If a channel is currently muted because of a MUTE SCENE, assigning it to the SAFE SCENE will immediately un-mute it.

3 Clearing the SAFE SCENE

If you wish to clear all assigned channels from the SAFE SCENE, press and hold the EDIT PREVIEW **C** button. After a brief delay, the display will change to CLR?. Continue to hold the button-down until the display shows CLRD. All channels assigned to the SAFE SCENE will be de-assigned.

4 Exit EDIT SAFE mode

Press the blinking EDIT SAFE button **D** again. It will stop-blinking and the system will return to NORMAL mode. Any blinking-green STATUS LED'S will turn to steady-green, indicating that the channel is in SAFE mode.

If a channel was previously being muted exclusively by a MUTE SCENE (STATUS LED steady-red), but is now safe, then the STATUS LED will indicate steady-green and the MUTE LED **L** will be off. If the channel was being muted by a LOCAL MUTE, it will remain muted. The SAFE SCENE does not affect LOCAL MUTES.

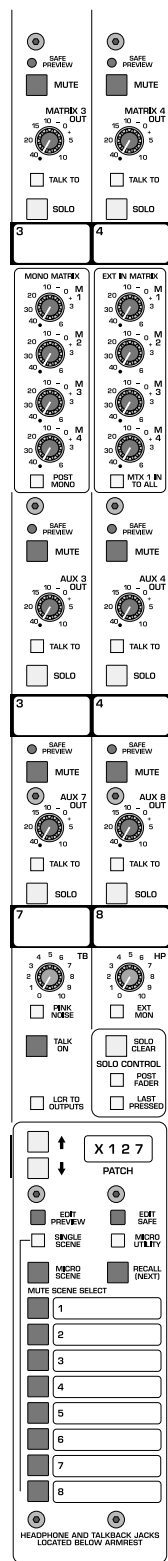
If an emergency arises and a programmed channel has to be un-muted, a channel can be quickly assigned to the SAFE SCENE via a three-step process:



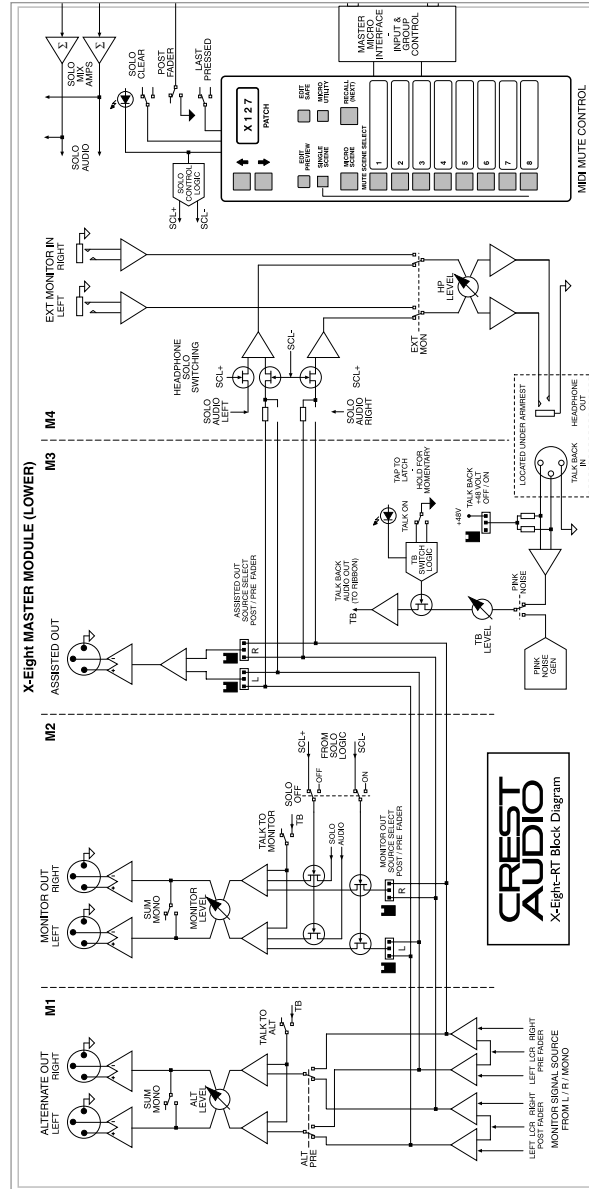
- 1 Press the EDIT SAFE switch to enter EDIT SAFE mode.
- 2 Press the MUTE switch for the desired channel. The channel will un-mute.
- 3 Press the EDIT SAFE switch again to return to NORMAL mode.

7 microprocessor muting system

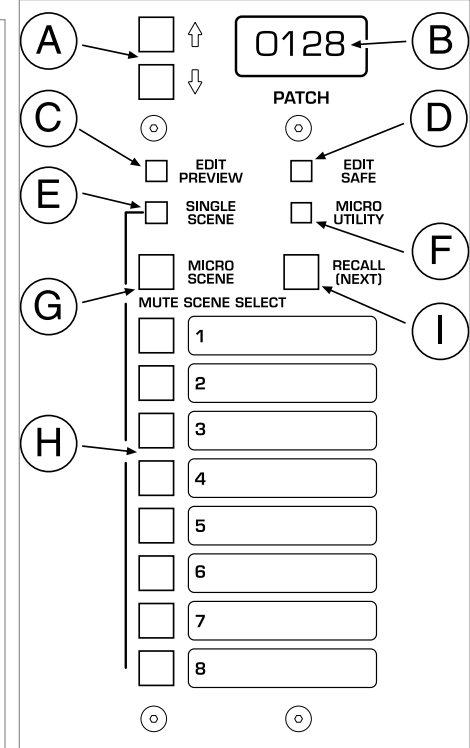
module



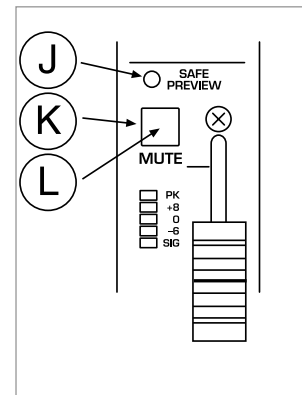
block diagram



mute control panel



typical channel



features

utilities

The MUTE CONTROLLER has a number of parameters that the user can change. A UTILITY mode is provided for accessing these settings. The following is a current list of parameters, along with their default and other possible settings.

The default-setting is indicated in **bold** characters.

display	meaning	settings
---------	---------	----------

uP	micro processor	ON OR OFF
-----------	-----------------	------------------

Determines whether the MUTE SYSTEM is ON OR OFF. When OFF, the entire MUTE SCENE system is disabled, only the LOCAL MUTES will operate. This setting can be used if *traditional* console operation is desired (i.e., no programmed scenes are desired).

M Ch	midi channel	01 –16
-------------	--------------	---------------

Sets the MIDI channel that the controller uses to communicate to the MIDI world. The MUTE controller can send and receive MIDI program changes, MIDI dumps etc. It does so on the selected channel.

Lock	edit lock	OFF OR ON
-------------	-----------	------------------

If set to ON, this feature prevents changes from being made to any MUTE SCENE. If EDIT PREVIEW is pressed when LOCK is ON, the word "Lock" is displayed and the system will not enter EDIT mode.

Dmp?	midi dump	
-------------	-----------	--

When activated, the contents of all the mute scenes are transmitted via the MIDI OUT jack using SysEx protocol. A librarian or archiving MIDI program can be used to store the MUTE settings externally.

Base	midi base	01 or 00
-------------	-----------	-----------------


There are 128 possible MIDI numbers. The X-Eight console can start counting at 01 and count up to 128, or start at 00 and count up to 127. Different MIDI devices do it either way—the choice is yours.

Ext	external control	OFF OR ON
------------	------------------	------------------

Normally, the MUTE SYSTEM uses its internal MUTE SCENES to control the console mutes. Alternately, MIDI note commands can be used to control the channel mutes directly. When **Ext** is ON, the DISPLAY **B** will indicate "Ext", and the normal MUTE SCENES will be disabled. The controller will now respond only to externally-received note on/off commands (via MIDI IN jack).

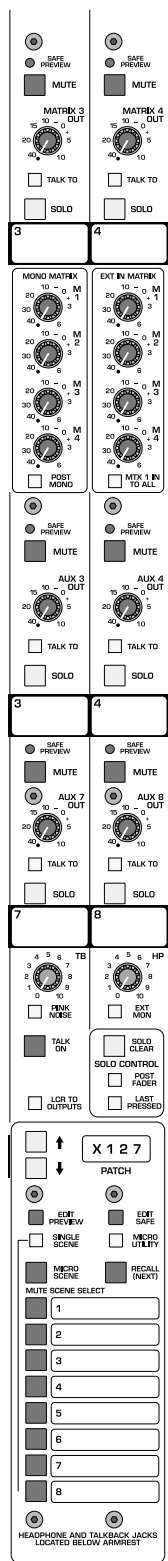
Pgm	program change	ON OR OFF
------------	----------------	------------------

The MUTE CONTROLLER normally sends a MIDI program change command every time the RECALL **I** button is pressed, corresponding to the PATCH number shown in the DISPLAY. Also, if a MIDI program change is received, the controller will respond by recalling the PATCH MUTE matching that program change. Setting **Pgm** to OFF disables the sending and receiving of MIDI program changes.

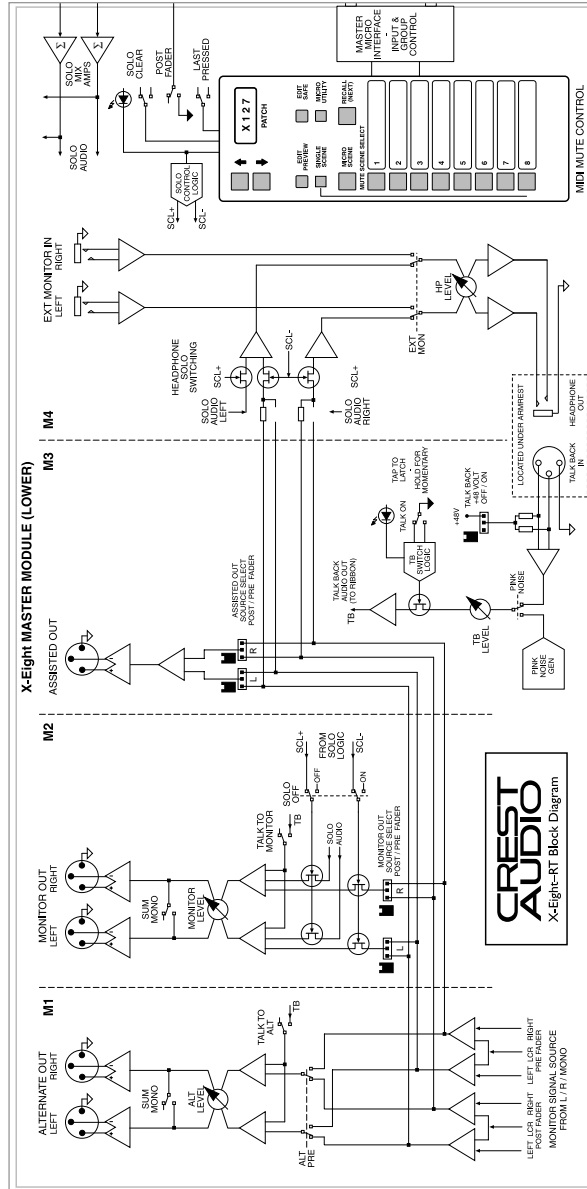
Loading of external data via SysEx command is always active. 

7 microprocessor muting system

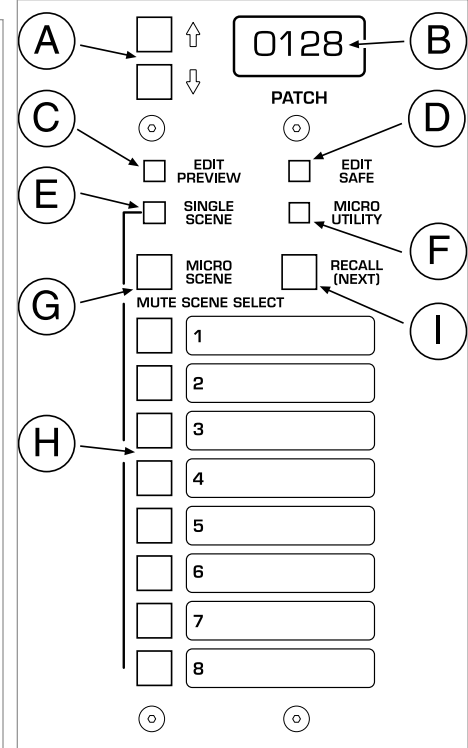
module



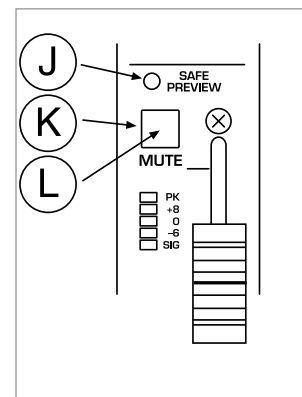
block diagram



mute control panel



typical channel



features

changing/reviewing utility settings

The UTILITY settings can be accessed by entering UTILITY mode. Once there, the different parameters can be changed to suit user's preferences. The changes stay in effect until they are again modified by the user, or a SYSTEM RESET is performed which changes them all back to their default settings.

utility mode

① Enter UTILITY mode:

Press the MICRO UTILITY button **F**, it is a latching switch, and the system will stay in UTILITY mode while this button is depressed. The DISPLAY **B** now shows the first parameter—**uP** of the parameter list.

② Select a PARAMETER to edit

Use the UP/DOWN keys **A** to scroll through the list of available PARAMETERS.

③ View the current setting


Press the RECALL **I** button. The DISPLAY will change from showing the PARAMETER to showing the PARAMETER'S current setting.

④ Changing the setting

While the DISPLAY is showing parameter settings (not the parameter itself), the UP/DOWN keys will scroll through the list of possible settings for that parameter. Select the new-setting and press the RECALL button again. The DISPLAY will briefly show ********, the displayed setting will be activated and the DISPLAY will go back to showing the parameter.

⑤ Exit UTILITY mode

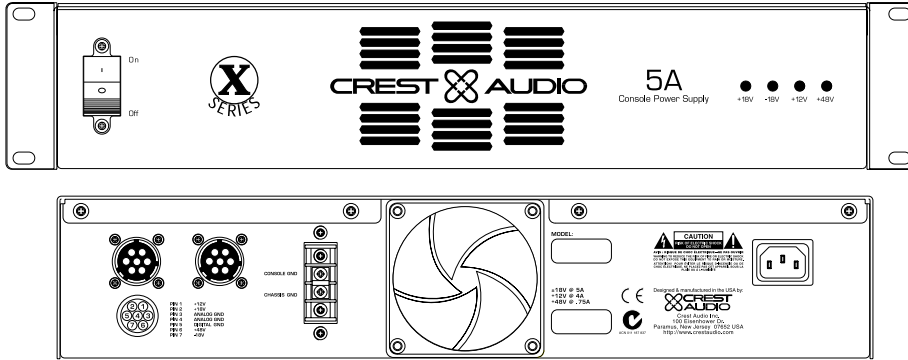
When finished, press-and-release the MICRO UTILITY **F** key, the MUTE SYSTEM returns to NORMAL mode with the new-settings in place.

 The only way to get back to showing the parameter is to press the RECALL button—even if no-change is desired, the RECALL button must be pressed.

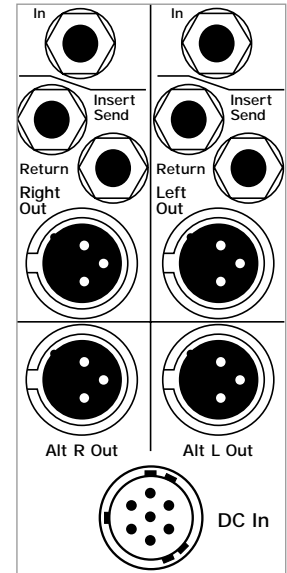
Make sure the display is showing the desired setting when RECALL is pressed. Then return to step-two above, and continue to select and change parameters.

8 power supply

model 5A power supply



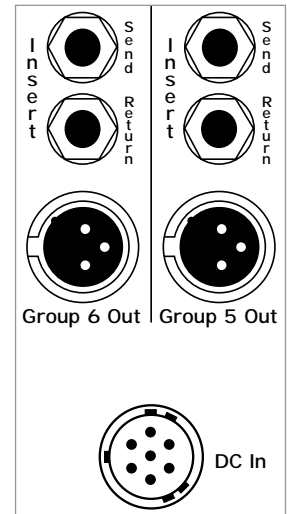
HS master rear-panel



specifications

output power	+18V @ 5A DC -18V @ 5A DC +12V @ 4A DC +48V @ 0.75A DC
DC out receptacle	two Hirose JR16RK-7S connectors on rear connector meets JIS C 5432 standard
DC out cable	grey polyurethane outer jacket, 15 feet long seven-way, 14-gauge stranded conductors rated 600 volts, 80 degrees C UL and CSA approved Hirose JR16PK-7S and JR16PK-7P connectors fitted
AC mains power supply	90 to 250 volts @ 4.5 amps maximum universal AC input voltage. No changes needed 0.5 amps idle
AC mains receptacle cable	IEC 320 C-13 3-pin 15 amp receptacle removable IEC type with country-specific mains plug fitted
approvals	UL, CSA, and CE
chassis	two-space 19 inch rack mount unit 3.5 inches tall, 17 inches wide, 12 inches deep. weight: 18 pounds

RT group rear-panel



power supply usage

supply identification

The type of power supply can be identified by the model number shown on the back of the chassis and panel label.

power requirements

The X-Eight power supplies have certain electrical requirements for proper operation. If possible the power supply should be connected to a dedicated circuit. Should any other appliance on the same circuit draw enough current to overload the circuit, the breaker or fuse will trip causing loss of power to the console.

The power switch on the supply front panel is also a circuit breaker; there is no power fuse. Should the supply ever shut down, or trip at start up, simply push the switch to the off position and then push on again.

Note the maximum current draw specifications at left.



Be sure that the circuit to which you connect the supply can handle the draw.

ground linking

SAFETY CONSIDERATIONS—each new power supply is shipped with the AC third-wire ground connected to the console chassis ground. The connection is made at the rear of the power supply unit. This is necessary for safety reasons so that exposed metal parts are grounded. In the event of a live conductor making contact with the console chassis or the power supply chassis then the current will flow to ground without a safety hazard arising.

Uninterruptible grounding—in a fixed installation for example, make a connection directly to the console chassis from the safety ground. Disconnect the ground link on the rear of the power supply. This disconnects console ground from power supply AC third-wire ground which could possibly create a hum-loop.

When the console is disconnected from the power supply the chassis ground connection to AC third-wire ground is broken and safety protection is lost.

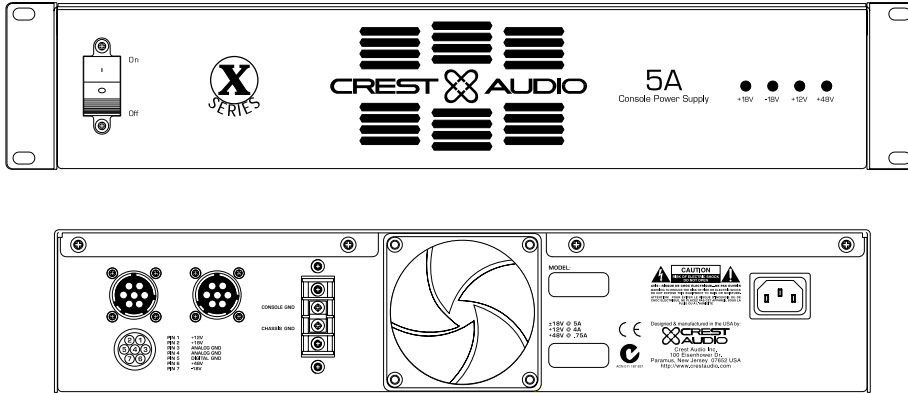


twin-supply operation

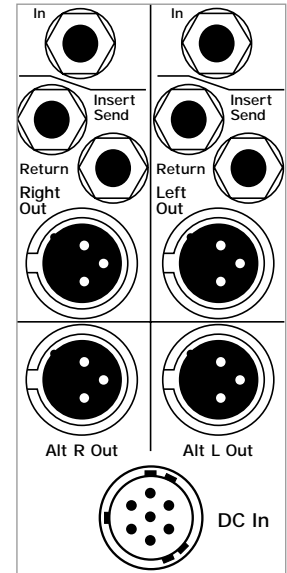
When twin-supplies are in use for automatic back-up, then the ground links on both supplies should be fitted.

In a situation where the safety ground to the console chassis has been connected and the ground path via the power supply is causing a hum-loop, then disconnect the ground links on both power supplies.

model 5A power supply



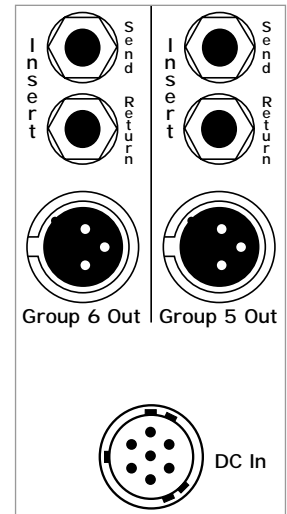
HS master rear-panel



specifications

output power	+18V @ 5A DC -18V @ 5A DC +12V @ 4A DC +48V @ 0.75A DC
DC out receptacle	two Hirose JR16RK-7S connectors on rear connector meets JIS C 5432 standard
DC out cable	grey polyurethane outer jacket, 15 feet long seven-way, 14-gauge stranded conductors rated 600 volts, 80 degrees C UL and CSA approved Hirose JR16PK-7S and JR16PK-7P connectors fitted
AC mains power supply	90 to 250 volts @ 4.5 amps maximum universal AC input voltage. No changes needed 0.5 amps idle
AC mains receptacle cable	IEC 320 C-13 3-pin 15 amp receptacle removable IEC type with country-specific mains plug fitted
approvals	UL, CSA, and CE
chassis	two-space 19 inch rack mount unit 3.5 inches tall, 17 inches wide, 12 inches deep. weight: 18 pounds

RT group rear-panel



power supply usage

console and power supply grounding

Console chassis ground is electrically connected to: the audio ground, pin-1 of XLR connectors, the sleeves of 1/4" sockets, and to the terminal CONSOLE GROUND at the rear of the power supply.

The AC third-wire connection in the power supply cable connects the metal chassis of the power supply to safety ground.

Rack-mounting—the power supply ground may transfer to the rack case through the front fixing screws, though this connection is not reliable.

Sound system use—the grounding requirements may call for the ground link to be disconnected. This is permissible only when an alternative ground path has been provided. If in doubt seek the advice of an experienced electrical engineer.

This connection should never be disturbed.



Hazardous voltages exist inside the power supply which require the case to be grounded.

redundant power supplies

The console power supply can be considered the single most important component in an entire sound system. If a power amplifier, a signal processor or a console input goes down in the middle of a show, the show can still go on. But if the console loses its power supply, the show is over. For this reason, it is always good practice to incorporate redundant power supplies for mixing consoles used in professional sound reinforcement applications.

This should be considered a high priority even when using a very reliable power supply. In even the most carefully designed sound systems, each component runs the risk of failure at sometime or another.

Crest Audio uses two methods for attaching redundant power supplies to consoles. In both methods, the two (or more) power supplies should be kept on while the console is in use to insure a smooth transition in the event that one shuts off.

If one power supply drops in voltage or shuts off completely, the other unit takes over without any interruptions or audible glitches. As an added precaution, the two (or more) power supplies can be fed by separate AC lines. This will guarantee that the console does not shut off if one of the AC lines goes down.

The use of redundant power supplies is probably the single biggest step that can be taken in reducing or eliminating the chance of a cancelled performance due to system failure.



multiple power supplies in-series

Crest Audio X-Series consoles use this method for backup. Since each power supply includes voltage switching circuitry, more than two units can be hooked up in series. A DC link cable ties the power supplies together.



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